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ABSTRACT

This manual, part of a long-range planning model concerning goal formulations, is a revision and update of an earlier work on writing educational performance objectives (ED 073 529). It modifies and extends the former manual to provide the total system description necessary for curriculum development as well as curriculum implementation. The first section includes a short explanation of the writing of performance objectives. The second section addresses the actual development of curriculum. Its purpose is to assist educators in clearly defining what schools should be teaching and to express those findings in performance terms. It also presents techniques for placing a curriculum into a logical learning sequence throughout the grade levels. The third section covers methods and suggestions for managing a sequenced curriculum for individualized instruction, the final phase of program implementation. The manual is intended to help a district or school analyze, develop, and manage a curriculum for individualized instruction. Exercises are included. (Author/JM)

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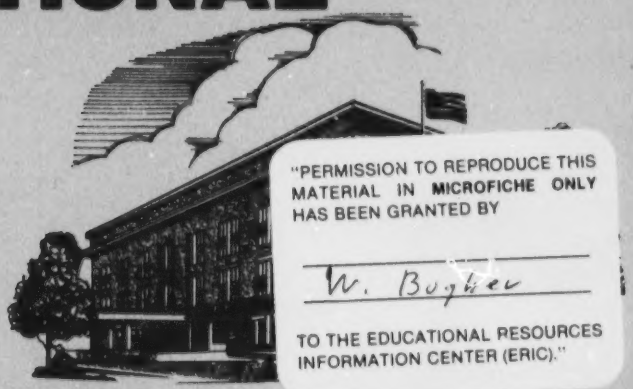

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CURRICULUM DEVELOPMENT MANUAL

DEDICATION

Phi Delta Kappa dedicates the PDK **Educational Planning Model** to the memory of Dr. B. Keith Rose, author of Phases I and II and co-author of Phase III. This organization and education suffered a great loss when, on August 22, 1975, Dr. Rose suffered a fatal heart attack.

As Director of the Northern California Program Development Center, he had provided the leadership that led to development of the planning model and SARI (Systematic Approach to Reading Improvement). It was also his original idea that Phi Delta Kappa undertake dissemination of these programs, an effort that has touched school districts throughout the United States and in many other countries.

Dr. Rose possessed the unusual ability to establish immediate rapport with community groups from diverse backgrounds. He used this ability in representing Phi Delta Kappa as a workshop leader, as a speaker, and as an individual interested in all aspects of education.

To those who knew him best, it was Dr. Rose's deep humanity and endless generosity that made him a great educator. His greatest joy as a professor of education was in providing individual counseling for his students. This generosity led to long hours of work, but it never dimmed his enthusiasm nor thwarted his creativity.

It is fitting that one of Dr. Rose's final accomplishments was completion of the last phase of the planning model that had played such an important part in his recent professional life. His passing leaves a gap that cannot be filled; however, Phi Delta Kappa takes great pride in his PDK membership and in his accomplishments in the service of education.

EDUCATIONAL PLANNING MODEL

PHASE II
CURRICULUM DEVELOPMENT MANUAL

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FOREWORD

Educators across the nation are continually involved in the processes of analyzing, discussing, and subsequently revising their curricular offerings. It is a well known fact that this is a difficult and time consuming task, often complicated by the lack of available models or procedures, legislative mandates, community pressures, and the fact that many educational decision makers have had little training or experience in these processes.

The purpose of this manual is to provide educators with a well defined, uncomplicated, and proven process for analyzing and developing curriculum.

The processes described will take the educator from the initial phases of curriculum development to a finished product and on to implementation of the program. This "total approach" concept is one that is unique in the field of curriculum development.

This approach to curriculum development and the products and management system which will ultimately be produced should meet any requirements a district may have regarding individualized programs and/or competency based education.

This manual is a revision and update of earlier work developed for Phi Delta Kappa and described in *An Instructor's Manual for Teachers and Administrators* for use with a *Programmed Course for Writing of Performance Objectives*. Over a period of several years the manual was extensively used in a wide variety of situations and locations. Although highly successful, it lacked the total system description necessary for curriculum development as well as curriculum implementation.

This manual completely modifies and extends the former manual and is one of the basic parts of the total Phi Delta Kappa **Educational Planning Model.***

This new manual is composed of three sections:

The first includes a condensed section on the writing of performance objectives—a review for those with some experience or a short course for those without experience. This entire manual is based upon the fact that educators developing curriculum must be able to clearly and skillfully write performance objectives.

The second section addresses the actual development of curriculum. Its purpose is to assist educators in clearly defining what it is that schools should be teaching and to express those findings in performance terms. It also presents techniques for placing curriculum into a logical learning sequence throughout the grade levels.

The third section covers methods and suggestions for managing sequenced curriculum for individualized instruction, the final phase of program implementation.

Curriculum development is a very time consuming and sometimes risky task, as it ultimately will require change. For positive results these facts should be considered and discussed prior to committing the district to the task. It will require a commitment on the part of the entire educational community—from the board, administrative staff, teachers, parents, and students.

The process can also be rewarding. Using this manual and its suggested procedures, a district or school will be able to analyze, develop, and manage a curriculum for individualized instruction.

*For more information on the PDK **Educational Planning Model** please contact:

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WRITING PERFORMANCE OBJECTIVES

The curriculum development processes described in this manual are based on the premise that educators developing instructional programs must be able to express their objectives in performance terms. The purpose of writing curriculum is to develop clearly written statements describing exactly what is expected from learners. Once this is accomplished, teachers are better able to communicate and/or plan instruction accordingly.

This section of the manual is designed to serve two specific purposes. First, to provide to those with little experience in writing performance objectives the required information and background to competently use the procedures described herein. Second, to offer to those who have had past experience in writing performance objectives a review and clarification of terminology and procedures. There are so many approaches to the writing of objectives using varying types of procedures, definitions, and language that it can be important, even for those with experience, to review this section.

Rationale for Performance Objectives

The educational community as a whole can benefit in many ways by using performance objectives. The following statements provide a rationale for their use when designing curriculum:

Provide an effective and an efficient way of analyzing curriculum

—by ensuring *continuity* of a curriculum from kindergarten through grade 12.

—by ensuring that once *priorities* have been established, resources may be more effectively utilized.

Assist teachers in planning

—by providing *structure* for the teacher to plan and prepare instructional materials to meet the needs of the learners. It will assist teachers in determining what to teach but not how to teach.

—by *clarifying* for both learner and teacher the purposes and objectives of specific instructional tasks.

Assure continuity in a school program

—by facilitating methods of *individualized* instruction designed to effect learning without failure and to eliminate overlaps, voids, and repetition within the curriculum.

—by *strengthening* the areas of curriculum revealed to be weak by test results or other methods of documentation.

Help with district articulation

—by ensuring that *critical skills* will be emphasized.

—by creating a vehicle for elementary-secondary *communication*.

—by ensuring that *educational objectives*, which are difficult to measure, remain an integral part of the curriculum.

Place teachers in a professional and defensible position

—by holding learners *accountable* for their achievements through the use of clear, precise, and achievable objectives.

Assist teachers when reporting to parents

—by providing clear understandable objectives regarding the *progress* of learners.

Criticisms of Performance Objectives

Educators are occasionally critical of performance objectives and raise questions with respect to their value. Major criticisms are listed below accompanied by suggested responses. These may help to clarify objections in the minds of participating staff members.

Performance objectives are "mechanical" and are an inhumane way of teaching children.

First, a performance objective does not tell a teacher how to teach; in fact, it is the teacher who makes this determination, who designates the specific critical skills believed to be most important for the learners to accomplish in order to be successful in school and the "real" world. It is the teacher, then, who determines what is to be taught.

A performance objective explains in the clearest terms possible what is expected from the learner. What can be more humane, open, and honest than to say to a learner, "Here are the specific things I want you to learn, and I am going to do all I can to help you be successful in learning them."

Teachers have been trained and are paid to teach. The "successful" teacher will use a variety of teaching techniques to help learners reach an objective. Instructional techniques will vary from learner to learner. There is yet to be developed a magic formula which will automatically produce the "optimum" teaching strategy to meet the needs of every individual learner.

Finally, performance objectives are but tools to be used along with other educational materials and curriculum designs. They are no more or less humane than the person in whose hands they are being utilized.

Performance objectives take away learner individuality, in that all must achieve the same objectives in the same way.

A complete system based upon performance objectives individualizes learning as it has never before been possible. When a complete learning sequence is developed, the learner proceeds at an individual rate and in individual style, guided by the teacher, and directed by the methods or media selected. Each learner is expected to acquire certain critical skills and attain specified levels of proficiency at an individual learning rate—many will surpass the required levels.

Performance objectives take away the creativity of the teacher.

In reality, the teacher has more time to be creative. Once the objectives have been established, agreed upon, and a sequence of instruction produced, the teacher can concentrate on the "how" of teaching. The "how" of teaching deals with methods and media to use with a particular learner or group of learners so they receive the maximum benefits from the experience.

Many desirable objectives are not measurable and many learning experiences are not measurable.

There are many things taught that are not immediately measurable or observable. This certainly doesn't mean they shouldn't continue to be taught. It has been found that teachers are perceiving many more things as measurable now than they were a few years ago. This trend will continue as teachers develop greater skills in the writing of performance objectives. For example, it is now possible to measure, to a larger degree, those learning processes or behavioral changes which take place

in the affective domain. This is particularly true of creative teachers in the areas of the fine arts, social sciences, and English as well as many other areas, where attitudes, values, and feelings are so important. But teachers need not stop teaching particular areas of the curriculum simply because they are not yet ready to cite measurable results. The point is that many learning experiences are measurable, and those are the things we should attempt to measure.

The system of performance objectives is dehumanizing to the teacher.

The validity of this statement depends upon how a district embarks upon the program. If an arbitrary decision is made to purchase a prepackaged program from a commercial company or from another district, then this technique could cause some problems. But if a staff is allowed to determine its own objectives and write into the plan those things which they, as the subject matter experts, believe are important, then the plan has every chance of success in contributing to increased freedom in teacher interaction. This does not mean commercial materials should not be used or materials from other districts shouldn't be carefully examined—they should be, but only after the staff has been thoroughly trained to write, recognize, and discriminate between a proper and an improper performance objective. Many materials are available, especially from school districts where performance objectives have been completed. Their materials should be utilized to avoid duplicating time and effort.

The staff doesn't have the time to do all this work.

In many cases this is true, and districts will simply have to find ways around this problem. Many are establishing a number of minimum days during the school year. This seems to be the most common approach. Several solutions used by a great number of school districts are presented in Section II of this manual.

How will teachers be evaluated when they begin using performance objectives in the classroom?

Upon completion of performance objectives at all levels of instruction, adoption of the procedures, and implementation of the plan—instructional activities and programs must then be evaluated. In all probability present educational systems will have to be altered. New criteria and procedures will have to be identified, field tested, and established as policy. This is a new area in education—a "twilight zone." Few programs have been developed to establish evaluation procedures based on performance objective teaching.

Clarifying Goals and Objectives

For those persons with a basic background in writing performance objectives, the following has been written to briefly review terminology and techniques. Those without experience will find the section an excellent orientation guide.

Prior to engaging in activities in writing performance objectives, it is important to define, clarify, and differentiate goals from objectives. These two terms are often confused and used interchangeably. Each has a specific purpose in curriculum development and should be used within the parameters of its definition.

GOAL:

Definition: a statement of *broad* direction, *general purpose*, or intent. A goal is *general* and *timeless* and is *not* concerned with a *specific achievement* within a specified time period.

Some examples of goals are:

—gain a general education

—develop skills in reading, writing, speaking, and listening

—learn how to examine and use information

—develop a desire for learning now and in the future

If the reader will compare each of the preceding goals to the definition, it will be noted that they indeed are *broad statements of general purpose* that are stated in *timeless terms* and *not* concerned with *specific achievement.*

It is recommended that prior to implementing activities for districtwide development of performance objectives, the district involve citizens of the community in a goals selection, identification, and ranking process.* Once this process has been completed, district personnel will be in a position to more clearly identify desirable objectives to better meet the educational needs and desires of the community. Many districts throughout the United States have found this a valid approach in redesigning instructional programs. Once goals have been established, it gives the staff a clearer direction for developing performance objectives.

PERFORMANCE OBJECTIVES:

Definition: a clear, precise statement of *what the learner is expected to do* by the end of a prescribed learning period. It describes *how the learner is to demonstrate competency* and *how well the learner is to perform* in order to demonstrate competency.

Some examples of performance objectives are:

—Given a story, the learner will read and recall the details and select the correct answer for each question with 100% accuracy.

—The learner will demonstrate competency with synonyms. When given 10 sentences, each with an underlined word, the learner will select a synonym from a provided list for each underlined word with 80% accuracy.

—The learner will, when given a pencil, paper, and ruler, construct parallel, intersecting, and perpendicular lines without error.

—The learner will describe a minimum of three ways that the human body protects itself against pathogenic microorganisms according to criteria established by U.S. Department of Health.

—Given 20 short case studies of social interactions, the learner will identify those that reflect prejudice and describe the particular example with 90% accuracy.

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Each of these examples of performance objectives have three basic components. Those components are *the what*, *the how*, and *the how well*. These three components have been identified below for the first example objective.

Given a story, the learner will read and recall the details and select the correct answer for each question with 100% accuracy.

The what: recalls details

The how: select correct answer

The how well: answer each question correctly, 100% accuracy

The reader should verify skill in identifying these three components by correctly completing the following two examples.

1. The learner will demonstrate competency with synonyms. When given 10 sentences, each with an underlined word, the learner will select a synonym for each underlined word with 80% accuracy.

The what: _____

The how: _____

The how well: _____

2. The learner will, when given a pencil, paper, and ruler, construct parallel, intersecting, and perpendicular lines without error.

The what: _____

The how: _____

The how well: _____

Review the differences between a goal and a performance objective by studying the chart that follows:

GOAL	OBJECTIVE
general timeless broad not measurable	clear precise statement simple language demonstrated competency

The short exercise that follows has been provided to give an opportunity to verify and correctly identify goals and objectives. Using the letter "G" for goals and the letter "O" for objectives, place the appropriate letter on the blank following each of these statements that identifies it as a *goal* or an *objective*.

1. Given a story and five sentences, the learner will number each sentence in the correct sequence. _____
2. Understand and practice democratic ideas and ideals. _____
3. The learner, given 15 two-digit subtraction problems, will solve each with regrouping making no more than one error. _____
4. Given 20 incomplete sentences, the learner will select a word from the word bank and complete each sentence. Minimum: 18 correct _____
5. Develop good character and self-respect. _____

ANSWER KEY

1. O 2. G 3. O 4. O 5. G

Elements of Performance Objectives

The first step in developing performance objectives is to clearly understand the terminology associated with the process.

A PERFORMANCE OBJECTIVE:

A performance objective identifies exactly *what* the learner is to do, defines *how* the learner is to demonstrate it, and states *how well* the learner is to perform.

It is important to remember that a performance objective must contain the following three elements:

***What* must be *known* or *done*.** For example:

—facts to be learned

—projects to be completed

—ideas to be analyzed

—definitions to be memorized

—places or things to be identified

—problems to be solved

***How* it will be *done* or *demonstrated*.** For example:

—by a written test

—by oral explanation

—by physical demonstration

—by role playing

—by making something

—by exhibiting a certain kind of behavior

***How well* it must be done.** For example:

—correctly (implies 100% accuracy)

—with 90% accuracy

—to the satisfaction of the teacher

—according to a criterion (standard of measurement)

—to the satisfaction of the learner's peer group

—as measured by a standardized test

If the third element "*how well* it must be done" contains the statement "to the satisfaction of the teacher or peer group," the criteria for what constitutes satisfaction should be stated. The learner must, in all instances, know specifically how well to perform. For example: in advance it should be specified that the learner:

—agrees to collect a number of specimens

—agrees to include a drawing or a diagram

—reviews and discusses with the teacher using a check list

—compares work to samples of other similar work

—uses three documented sources

A frequent question is, "What happens if the learner fails to meet the stated criterion of the objective?" or, "How do I know what to establish for a criterion?" In order of their priority, there are two alternatives.

Analyze the methods and media used to teach. It is possible the methods or media were not the most effective way of teaching the learner the skills or knowledge necessary to achieve the objective.

Alter the criterion. The first time an objective is written, the teachers may have overestimated the ability of learners to achieve the objective at a particular point in time. The opposite of this may also be true, increasing the criterion may prove challenging and more valid in increasing skill achievement.

If the reader at this point feels it desirable, a series of exercises have been provided in the Appendix to verify skills in identification of performance objectives. See Appendix, Exercises I-V.

Important Statements Regarding Performance Objectives

A performance objective must identify an observable behavior.

The identification of observable behavior as the outcome of a prescribed learning activity is the fundamental characteristic of a performance objective. For example:

> Given a worksheet, the learner will be able to add correctly 18 out of 20 single-digit, number problems involving simple addition.

The observable behavior is adding correctly, or stated in another way, the learner demonstrated to the observer the prescribed process to correctly solve simple addition problems. Several additional examples of observable behavior usable in performance objectives are:

—reading without error

—constructing by following given directions

—writing a paragraph

—alphabetizing

—coding

—glazing ceramic objects

—welding electrically a straight seam

A performance objective must identify the specific criterion for learner success.

For example:

> Learners provided with a blank outline map and a list of the names of all South American countries will correctly match the name of the country to the appropriate map location. One hundred percent accuracy required.

The performance objective informs the learner of the specific criterion to be achieved to demonstrate mastery, in this case 100% correct. Successful performance in this case allows for no errors. It should be noted that the teacher is responsible for establishing criteria for successful performance.

The purpose of the standard or criterion is for the learner to be able to demonstrate success rather than be proven a failure. The criterion for success may be passing a written test, even one with time limits, but the nature of the test must be known to the learner when the learning activities begin. The criterion for success might be simple demonstration of a skill mastered, the teacher's evaluation by a prestated check list, or a completed project which is the product of the learner's effort. Creative teachers will develop many other good criteria for demonstrating mastery by learners who have pursued prescribed learning activities. *In every case, the objective states these criteria to the learner before work begins.*

The learner must be able to identify the outcome of personal efforts.

The learner certainly needs to know the anticipated end result of personal efforts. A common objective between the learner and teacher can exist only when clear communication and understanding exists.

In order for the learner to have a sense of direction, the end result of personal efforts must be outlined and described so that the outcome can be envisioned before work begins. Learners who are not highly motivated need objectives of a short-term nature so that success can be immediate. The learner's initial glimpse of the product of personal efforts can be communicated by a carefully stated objective. For example:

> The learner, using a ruler, t-square, 45° triangle, drafting paper, and pencil, will accurately construct a 2-inch square, a 3-inch by 4-inch rectangle, and a triangle with a side and base of 2½ inches without error.

Having read this objective, the learner can visualize what the products of personal efforts will be, and will know when the assignment has been completed.

The terminology must be specific and clear.

There are key words often used in performance objectives which tend to make the objective clear and explicit, while other words tend to vagueness. For example:

> Given blueprints, power tools, and materials, and while correctly adhering to all shop practices and rules, the learner will construct a jewel box with the following dimensions: height 5 inches, length 10 inches, width 6 inches.

Having read this objective, does the reader clearly understand what the learner is to do? What single word clearly tells the learner what to do? *Construct* is a word that falls under the classification of clear and precise.

The teacher can observe that a learner is able to identify the form of a sonnet or to write a sonnet, but it is more difficult to observe the depth of the learner's enjoyment of literature or poetry. For example:

> Learners will read *Caine Mutiny* and empathize with Captain Queeg's paranoia regarding distrust of the ship's crew.

Having read this objective, can the reader say the learner will clearly and precisely know what is to be done? It would be a difficult task. This second objective is vague and unclear. The reader should see the difference between this example and the previous one. "Construct" is observable and measurable; "empathize" must be defined very carefully for the word is difficult to observe or to measure.

WORDS WHICH TEND TO BE PRECISE	WORDS WHICH TEND TO BE VAGUE
to contrast	to appreciate
to compare	to believe
to differentiate	to enjoy
to identify	to grasp
to list	to know
to solve	to understand

Clear and precise terms are especially important when writing performance objectives for short units, assignments, or instructional packages. Terms in the above left column make the definition of student success more concrete, while the words in the right column are not specific enough and communicate different things to different people, unless clarified to the satisfaction of learner and teacher.

It is more difficult for the teacher to give specific observable criteria for a change in behavior using the phrases in the right column. Yet, if a teacher recognizes that learners show appreciation of poetry by volunteering to read poetry aloud to the class or by writing poems without outside reward, then one way to measure appreciation may be by the number of learners who voluntarily participated in these activities. Remember, the words used by the teacher must present no ambiguity to the learners if the objective is to be effective.

The objective and the standard or evaluation must be consistent.

The statement regarding the desired behavior of the learner must be clear, complete, and as all inclusive as possible. For example, it is not fair to ask a learner to accept the objective of baking biscuits of a certain quality in homemaking and evaluate the learner on the correct use of kitchen appliances. If the biscuits are of the quality which are specified, then the learner should have the recognition of success. If the proper use of kitchen appliances were to be part of the objective, this part of the objective should also be communicated to the learner. Study the examples below, and identify those with consistent standards or evaluations by a check on the blank.

1. _____ Learners in driver education will demonstrate the correct techniques for parallel parking by quoting appropriate traffic safety codes.

2. _____ The learner will demonstrate the basic five skills required to execute the Western Roll high jump.

3. _____ The learner will calculate double-digit, addition problems with 90% proficiency.

ANSWER KEY

1. _____ 2. ✓ 3. ✓

Performance objectives must be relevant and achievable.

A learner is intrinsically motivated if objectives can be recognized as ones which meet a personal need or needs. Learning will occur if the objectives and activities are realistic in terms of the learner's individual potential. The objective must be achievable by the learner for whom it is intended. An example of an objective which is relevant to many learners enrolled in high school is:

> Learners in tenth grade will be certified as eligible for participation in the office workstudy program by passing competency level tests in typing, record keeping, and filing.

In contrast, the learner is not likely to be motivated to enter the learning activities of an assignment if the objective is one for which the learner does not see a need. Many learners would *not* react positively to the learning objective that follows:

> When given a list of 10 important incidents related to the Revolutionary War, the student will be able to attach the corresponding dates including day, month, and year to at least 8 of the 10.

This objective might be considered to be technically correct but with questionable content value. It is clear what is expected of the learner, but is it relevant to the learner? Will the learner see a personal need to enter the learning activity? The teacher therefore must make relevance a prime concern when developing learning objectives.

Classification of Learning Behaviors

After practicing the writing of objectives for some time, it becomes apparent that they are written at various levels of difficulty. While some call for rather simple tasks such as recalling facts,

others may ask learners to analyze information or evaluate it. Recognizing the varying difficulties becomes increasingly important as teachers begin to sequence objectives and place them into a logical learning order.

A great deal of work has been done in this area, and the most commonly used classification is the one completed by Bloom, Krathwohl, and others working at the University of Chicago. They described three types of behaviors or domains as follows:

Cognitive domain:	primarily mental and intellectual processes
Affective domain:	primarily attitudes, values, and feelings
Psychomotor domain:	primarily physical and neuromuscular skills

The entire process is usually referred to as "Bloom's Taxonomy" and is described in detail in two works:

Bloom et al., *Handbook I Cognitive Domain;* and

Krathwohl et al., *Handbook II Affective Domain.*

THE COGNITIVE DOMAIN

Most performance objectives are written with reference to the intellectual processes of the learner. These processes are referred to as the cognitive domain. Within the cognitive domain there are various levels of learning difficulties:

Simple	Knowledge:	recall, remembering, or storing of information
↑	Comprehension:	understanding a communication, a message, making inferences, meaning
↑	Application:	applying information to new problems, situations, transferring of knowledge
↑	Analysis:	a breaking down of materials into parts, distinguishing fact from hypothesis, noting how ideas relate
↑	Synthesis:	putting together elements, drawing upon elements from many sources and putting them into a pattern, problem solving
Complex	Evaluation:	making judgments, involves use of criteria and standards for making appraisals

While it is valuable to recognize and be able to write objectives at all of the levels, a first step is to be able to identify an objective as "simple" or "complex." In other words, is the objective at the lower end or upper end of the cognitive taxonomy? The ability to decide this will help teachers determine the proportion of performance objectives written at each level. For additional examples and practice see Appendix, Exercise VI.

More information can be found in a variety of sources. Among them *A Programmed Course for the Writing of Performance Objectives*, available from Phi Delta Kappa's Center for Dissemination of Innovative Programs, Eighth and Union Sts., Box 789, Bloomington, IN 47401.

THE AFFECTIVE DOMAIN

It would be negligent not to mention a second learning category or domain which often receives little attention in terms of performance objectives. This is the affective domain, which deals with the attitudinal, emotional, and valuing behaviors of the learners. It is a more nebulous area than the cognitive domain, but according to many educators, equally, if not more important. It is difficult, but not impossible, to write performance objectives in this domain. As teachers become more proficient in the writing of performance objectives, many are producing creative products in the affective domain. Some samples include:

The learner will accept children of all ethnic groups in the classroom or on the playground by demonstrating willingness to a) include all children in games and activities; b) choose a child regardless of ethnic group for leadership; c) work together with all children in study groups; d) choose children for personal friends from any ethnic group, as determined by teacher observation.

The learner will produce an art object using one or more of the following media: construction paper, paints, crayons, modeling clay. The learner will give evidence that both process and product were enjoyable, through a comment or expression of satisfaction, as observed by the teacher.

The learner will demonstrate a more positive attitude toward self after three one-hour group counseling sessions, as determined by an increase of one-half standard deviation in pre and posttest scores on the California Test of Personality.

After completing an exploratory music program in the Ging Elementary School, the learner shall demonstrate interest in music by voluntarily participating in curricular or extracurricular music activities conducted at the high school level.

There are five levels of the affective domain:

Receiving: willingness to attend to a specific stimulus. From the teacher's viewpoint, it is concerned with getting, holding, and directing a learner's attention.

Responding: active participation on the part of the learner; may be acquiescence in reading, reading beyond the assignment, choosing to read in the library beyond the rest of the group. "Interests" are commonly found here in the objective.

Valuing: worth or value a learner attaches to a particular object, behavior, or phenomenon. "Appreciation" and "attitudes" usually fall at this level.

Organization: is concerned with bringing together different values, resolving conflicts between them, beginning building an internally consistent value system. Building a philosophy of goal for the self would fit here.

Characterization: pervasive, consistent, predictable behavior, a characteristic life style. General patterns of adjustment fall in here—personal, social, emotional behaviors.

THE PSYCHOMOTOR DOMAIN

This domain deals primarily with physical and neuromuscular skills. There is not a single accepted list of the levels of the psychomotor domain as there is in the cognitive domain. A commonly

accepted list, which was developed by Dr. R. H. Dave, Head of the Department of Curriculum and Evaluation of the National Institute of Education in New Delhi, India, includes:

Imitation:	of some observed act usually lacking neuromuscular coordination or control—generally crude and imperfect
Manipulation:	emphasizes skill in following directions
Precision:	emphasizes accuracy, exactness, control with reduction of errors
Articulation:	emphasizes coordinator of a series of acts—involves accuracy and control plus elements of speed and time
Naturalization:	the act is routine—automatic and spontaneous responses—performance is natural and smooth

As the material in the next section is presented, it will become clear that the three domains and their various levels will play an important part in developing instructional curriculum.

PROCEDURES FOR CURRICULUM DEVELOPMENT

Overview of the Process

This section is the focal point of the entire process of analyzing and developing curriculum. The approach involves a progression of steps and procedures which have been developed and used by teachers in numerous schools across the country. The procedures are logical and systematic and yet are flexible enough to allow districts to alter or adapt the process according to their own unique needs or desires. Further, the process has been favorably received by those involved who see it as a means to articulate curriculum between the different grade levels, establish a useful intra-school communication system, and clarify to students, parents, and administrators the intent of the instructional program. The process is based upon a series of observations:

Those developing curriculum should be the same people who are to teach it and be held responsible for it.

To be communicated and to be defensible, curriculum must be written as performance objectives.

Curriculum must be written for learners.

Two levels of curriculum must be developed:

—the program level which clarifies what learners should be able to achieve by the end of a program; and

—the instructional level which clarifies those tasks learners will have to accomplish along the way so they may complete the program level objectives.

The instructional level objectives need to be ordered in a logical learning sequence and teaching responsibilities allocated to various grade levels.

Eventually, when completed, the curriculum will lend itself to individualized instruction.

Levels of Objectives

This process utilizes only two levels of performance objectives. First those developed at the *program level* and secondly those developed at the *instructional level.* The use of only these two levels is an attempt to simplify the task of writing objectives and developing curriculum. It is most important to have the two levels clearly in mind before proceeding.

PROGRAM LEVEL OBJECTIVE:

Program level objectives are developed for all required and elective sequences and individual courses, and reflect the desired exit level of performance expected of the learners. These objectives are written to obtain the critical skills and knowledge necessary for learner survival at the next educational level, or, for functioning in the real world.

INSTRUCTIONAL LEVEL OBJECTIVES:

These are written for all the skills necessary to achieve the program level objectives. The question that is important to ask is, "What are all those things we must teach a learner, or the learner must achieve, in order to be able to complete the program level objective?" The answers to this question become the focus for instructional level objectives. Clearly written, instructional level objectives will become the basis for the sequencing or ordering of curriculum.

The program level objective becomes the desired end product, and the instructional level objectives become those things educators must do to get learners to that point. The instructional level objectives will eventually be ordered in a logical learning sequence ranging from the simplest to the most complex learning tasks, and will transcend various grade levels and/or courses. The entire process becomes the format for individualized instruction and individualized learning.

Program level objectives may also be synonymous with minimum levels of competency or graduation requirements which are currently being developed in many parts of the country. The purpose of developing program level objectives is to define and give focus to the desired end results of the particular educational program. The process is one of determining those things which are important for learners to be able to do by the end of a program or course and expressing them as performance objectives.

Once the desired end results are developed, then, and only then, can educators begin to address the question of how they are to get learners to that point. A simple analogy could be that of taking a summer trip. Only after the final destination has been selected can the decision be made as to how best to get there.

Writing Teams

A suggested approach to the development of curriculum is to use teams of teachers and administrators in the development process. Writing teams will accelerate the articulation process, eliminate unnecessary meetings, gain staff commitment to the procedures, and assure a higher quality product.

There are several configurations of writing teams which have been utilized. The following are several examples:

Elementary District K-8: If several schools are involved, there should be representation from each grade level. Teachers representing the involved schools will develop program level objectives for the end of grade eight. Once those are completed, the same team of teachers will begin work on the instructional level objectives. It is suggested that no more than two teachers represent each grade level.

High School District 9-12: In a high school district it is recommended that each department organize curriculum development teams with representation from each grade level.

K-12 District: This constitutes the optimum situation and usually results in fewer meetings and a curriculum that is articulated and ordered in a more logical manner. The process in a K-12 district simply has fewer steps and less chance of misinterpretation by the staff. Teachers from grades K-12 form a single writing team for a particular curriculum area. Using this approach, all teachers, regardless of the grade level they represent, have a voice in the development of the program level objectives. For example, if the team is working in the area of Language Arts or English, teachers from kindergarten through high school will

make up the team. This balances the team, provides for a variety of input, and assures a high level of professional dialogue. It becomes a stimulating and exciting process for the staff—particularly the interaction between the elementary and secondary participants.

If program level objectives are being written independently, as described in the first two alternatives, it is suggested that the two teams attempt to meet and discuss the program level objectives. The purpose is to reach agreement on the two sets of program level objectives. This can be done if each group writes a set of program level objectives, the elementary district for the end of grade eight and the high school district for the end of grade 12. In addition, the high school staff is asked to write down (not necessarily as performance objectives) those minimum skills in each curriculum area they feel learners should possess as they enter high school. A joint meeting is then held to reach a consensus on the program level objectives. All participants are given copies of the materials described above. In addition, the materials are reproduced on overhead transparencies. Two screens and two overhead projectors are arranged next to one another and in full view of all participants. One screen displays the elementary program level objectives. The high school's entry level skills are on the adjacent screen. The two groups then attempt to reconcile or compromise any differences between the two. The purpose is to revise or adjust the program level objectives until all participants are satisfied. This can be accomplished by discussing any inconsistencies and making the required changes during the session, or by appointing curriculum area specialists—from the teams—to meet at a later date to resolve any inconsistencies.

Management Procedures

Once a district or school has committed itself to proceed with analyzing curriculum, several factors must be considered before the process can begin. All of the following factors are important, however, the order in which they are considered will depend upon the district and its resources.

The entire process is time consuming and some kind of a commitment or plan must be developed by the district to provide time for the writing teams to complete their tasks. Three of the most common approaches are described below.

Minimum Days: Many districts offer minimum days for learners—a shorter than normal school day but one which meets the legal time requirements. This plan frees the staff shortly after noon and gives them a few hours to work on curriculum. Some districts have done this once or twice a month for a period of a year. It is a commitment on the part of the district and demonstrates to the staff that the district realizes the importance of the effort and also that the district feels the task cannot be successfully completed without providing extra time.

Payment of Substitutes: Other districts provide substitute teachers when regular teachers are working on writing teams. The cost depends on how many curriculum areas are being analyzed at any one time.

Other Sources of Income: Another approach is to attempt to locate a state or federal funding source which may provide resources to free staff for curriculum development. This is a viable alternative and should be carefully explored. If a district takes this direction, it normally requires more lead time to locate a source and to write a proposal. It may be well worth the effort.

Another early decision a district must reach is how involved they want to become in the process in terms of the number of curriculum areas to be analyzed. There are three common approaches:

If a district has the resources and size, it may wish to analyze the entire educational program. This is an ambitious plan but can be accomplished using proper management techniques and careful planning.

Many districts will proceed more cautiously and decide to analyze curriculum in only the basic skill subjects, such as reading, mathematics, and language.

Still others will explore the process by only analyzing one curriculum area in the beginning. This is sometimes accomplished when a district has conducted a need survey and has determined a priority area.

This can be a very realistic approach in that the district and staff is exposed to the process without involving excess resources. Frequently, this approach is used in smaller districts. It gives the staff a feel for the process in a single area and when the district is ready to expand to other curriculum areas, the process will move more rapidly.

An excellent approach for selecting the curriculum area involves the prioritization of goals for the district by the utilization of the Phi Delta Kappa **Educational Planning Model.** The use of the Phase I section of the model will provide data which can be used to identify the number one target goal. The Phase III manual of the model illustrates the procedures that should be completed before the selection of the target goal is finalized. Furthermore, the manual contains additional suggestions for utilizing performance objectives that are developed at a later date. Finally, an evaluation plan is suggested which should determine the effectiveness of the revised curriculum area.

Although it is extremely important that writing teams and other decision makers thoroughly understand the entire curriculum process as described in this manual, realistically, many will not find it necessary to engage in the earlier steps of the process. This is due to the fact that some examples of objectives, particularly at the program level, are available from a variety of sources. Some obviously are superior to others, but it is important for a district to collect as many samples as possible before embarking upon the process. This, most certainly, is not to imply that districts should adopt someone else's objectives, only that they should have other objectives as examples to accelerate their own work. Although many types of objectives are available, they are more readily available in the basic skill subjects. A few states have developed objectives in all general curriculum areas and those should be obtained.

Generalizations are difficult to make, but it normally takes a school district a year to develop program and instructional objectives and another year to implement the process in the classroom. By the third year, the program should be fully operational. This holds true whether a district elects to address all the curriculum areas or only one, but obviously depends upon size of the district and resources allocated.

The following is a guide for development of performance objectives. The guide is based on the assumption that the district has committed itself to proceed with the process and that the district has collected and will use samples from other districts.

Activities	Estimated Time for Completion	Comments
Review process for teams. Plan schedule and develop management procedures.	Two 2-hour meetings	Prior to this activity, the teams need to be selected. Following the initial meeting, there should be final approval of the schedule by board and/or administration.
Develop program level objectives.	Three or four 2-hour meetings	After completing the first draft of the objectives they should be distributed to the appropriate people for comments.
Finalize program level objectives.	One 2-hour meeting	Print in required amounts for distribution.
Develop instructional level objectives.	Twelve 2-hour meetings	Upon completion of draft, typed objectives must be distributed to all involved staff.
Finalize instructional level objectives.	Two 2-hour meetings	Prepare final typing and printing in required amounts.
Edit as required and print into final format.	Three 2-hour meetings	This task may not involve the entire writing team.

Program Level Objectives

The first step in the process is to develop program level objectives. The most practical approach is to address, in the beginning, only required courses or those subjects which all learners must take, or, to use the target goal approach described in the Phase I and III manuals of Phi Delta Kappa's **Educational Planning Model.**

Required courses are defined as those courses learners *must* take to qualify for graduation. If learners are required to take English from the first to the 10th grade, then program level objectives will be written for the end of the 10th grade. If learners are required to take only one year of math beyond the eighth grade, then program level objectives will be written for the end of that required course.

The writing team meets and attempts to decide and reach agreement regarding the content of the program level objectives. Using the example of English once again, teachers on the writing team will be asking themselves the question, "After ten years of English, what are the critical or minimal skills a learner needs to either go on to the next educational level or to survive in real-life situations?" Another difficult question that can be asked is, "What should we, as professionals, be guaranteeing learners in terms of skills and knowledge?" Or still another, "Why are learners required to take English for ten years, and how can we make that time beneficial to the learners?" Obviously, these are quite difficult questions and will lead to interesting conversations within the writing team, but they must be answered before program level objectives can be written.

If it is determined that all learners must take certain required courses because they are essential to the learners' future, then the writing team must identify, and express in performance terms, the critical skills within these required areas of the curriculum.

One question, or concern, immediately comes to the minds of many writing teams when this process is explained: "Won't minimal objectives based upon only critical or survival skills dilute the program and cause capable learners to lose motivational instincts?"

It should be made clear that this process, using the critical skills as a base, is only the beginning, a place to start and a point of departure for developing further curriculum. Minimal skills are a logical place to begin. It is also true that simply because a program level objective is written to be achieved by the end of the 10th grade, that certainly doesn't preclude a capable learner from mastering that objective at a much earlier date and going well beyond the minimal level. Only after it is determined what is expected of all learners can curriculum be developed beyond that point. Therefore, initially program level objectives are developed for the critical or minimal levels of competency expected of the learners. Also, it must be communicated clearly at this point that the program level objectives will not constitute the entire program for a particular curriculum area, but will cover only those items teachers feel all learners should master. Each curriculum area will, in all probability, have several program level objectives.

THE CRITICAL SKILLS

The identification of critical skills is the foundation upon which the entire process is built. Critical skill identification is the first step in developing program level objectives. Those involved in the identification of curriculum must begin by determining those things which are important for learners to know. Identifying critical skills will be one of the most rewarding, yet most difficult, tasks educators will perform.

Critical skills are defined as the minimum skills/knowledge/concepts which are imperative for the learner's survival or success at the next higher educational level or a real-life situation. Critical skills are further defined as skills all, or at least most, learners are able to attain or complete successfully—"master"—in various curriculum areas. Many educators define critical skills and differentiate

them from other curriculum skills by referring to them as the "need to know" as contrasted to the "nice to know."

A related question, or concern, which arises frequently is that some courses, particularly elective courses, may not impart critical skills and knowledge, but may simply be the "nice to know" courses. This is a legitimate concern and is answered in two ways. First, many schools do not require objectives for other than required courses. If this is the case, the problem solves itself. Second, if a school requires curriculum analysis and objectives for all courses, then those teaching individual courses should determine those critical skills they would expect learners to master at a minimum level. The skill would most certainly not constitute all skills to be learned in the course, but only those identified as being minimum or critical for a particular course. Objectives are written for the skills and will become program level objectives for the course, even though they may not fall into the category of "survival type" skills.

THE DEVELOPMENT PROCESS

Program level objectives are developed using a four step process:

Step 1. List major components—logical parts or categories—of the subject area.

Step 2. Take one of the components and establish the critical areas to be learned.

Step 3. Determine a minimum or reasonable level of proficiency which you can expect the majority of learners to attain.

Step 4. Write a performance objective for the particular skill area.

Step 1

HOW DO WE BEGIN?

FIRST, LIST MAJOR COMPONENTS OF SUBJECT AREAS

SUBJECT AREA: LANGUAGE ARTS (ENGLISH)

COMPONENTS: WRITING

LISTENING

SPEAKING

REFERENCE SKILLS

Examples of components of various curriculum areas:

Subject Area: Language Arts	Subject Area: Reading	Subject Area: Science
Writing	Vocabulary	Scientific method of inquiry
Listening	Word Analysis	Data keeping/observation
Speaking	Comprehension	Metric system—conversion of weights and measures
Reference skills	Oral Reading	Static vs. dynamic factors
		Classification of plants/animals
		Understanding basis of matter
		Atoms/compounds—chemistry concepts
		Physical laws of solids, liquids, gases
		Relationship of man and environment

NEXT:

TAKE ONE OF THE COMPONENTS AND ESTABLISH THE CRITICAL AREAS TO BE LEARNED

SUBJECT: LANGUAGE ARTS

COMPONENT: WRITING

1. EXPOSITORY COMPOSITION
2. FOLLOWING DIRECTIONS
3. DIFFERENCE BETWEEN FACTUAL AND FICTIONAL WRITING
4. MECHANICS OF ENGLISH
5. ESSAY WRITING
6. LEGIBLE HANDWRITING
7. WRITING A REVIEW
8. ORIGINAL (CREATIVE) WRITING

Step 3

NEXT:

DETERMINE A MINIMUM OR REASONABLE LEVEL OF PROFICIENCY WHICH YOU CAN EXPECT ALL, OR MOST, LEARNERS TO ATTAIN

SUBJECT: LANGUAGE ARTS

COMPONENT: WRITING

4. MECHANICS OF ENGLISH

MINIMUM OF 300 WORDS

FROM TOPIC OF LEARNER'S CHOICE

NO MORE THAN FIVE ERRORS IN SPELLING, STRUCTURE, WORD USAGE, PUNCTUATION, AND CAPITALIZATION

It is important to point out again that in all probability there will be several program level objectives for each subject.

FINALLY—

WRITE A PROGRAM LEVEL PERFORMANCE OBJECTIVE FOR THE PARTICULAR CRITICAL SKILL AREA

MECHANICS OF ENGLISH

BY THE END OF THE PROGRAM, LEARNERS WILL DEMONSTRATE ABILITY TO WRITE MECHANICALLY CORRECT PARAGRAPHS BY COMPLETING AN ESSAY OF AT LEAST 300 WORDS OF A TOPIC OF THEIR CHOICE, WITH NO MORE THAN FIVE ERRORS, IN SPELLING, PUNCTUATION, CAPITALIZATION, AND SENTENCE AND PARAGRAPH STRUCTURE.

Usually, but dependent upon the subject and the degree of difficulty of the critical skill required, program level objectives are written at the higher levels of the cognitive domain, or in many cases, in the affective domain. Program level objectives are most often an application of previously learned skills. Some various types of examples follow:

Letter Writing (English)

Learners will be able to write both personal and business letters by completing a minimum of three letters in each category, using the standard accepted format, without error in format.

Completion of Forms (English)

Given several standard forms, which will include, but not be limited to order forms, job applications, testing forms, insurance applications, social security applications, bank forms, and tax forms the learner will complete each without error in format.

Foreign Affairs (Social Science)

The learner will demonstrate understanding of the role of the United States in determining the outcome of two selected international crises—Cuba, Berlin, Vietnam, Middle East. The description must include:

—the position of the United States

—the position of other major powers involved

—a summary of the crises

—the role of the United States in determining the final resolution of the crises

The description of the above must be based upon the events as reported in a minimum of three documented references.

Environmental Awareness (Social Science or Science)

Given three critical environmental issues, in which controversy exists, the learner will select one, research a minimum of three points of view, form an opinion, and be prepared to defend a personal position in one or more of the following activities:

—participate in a debate on the subject

—write a letter to appropriate officials advocating a position on the issue

—prepare a letter to the editor regarding the issue

—plan a campaign to either support or oppose the issue according to the checklist prepared by the class and the teacher.

Team Sports (Physical Education)

At the end of the P.E. sequence, learners will demonstrate their understanding of the rules, and participate in a variety of team sports including basketball, touch football, softball, volleyball, as evidenced by their ability to a) pass a written test on rules with 80% accuracy, b) participate in a game situation as a team member and demonstrate knowledge of

the sport as observed by the instructor, c) referee at least one of the team sports for a full class period without assistance, and d) function according to P.E. department criteria as a team captain in a minimum of two team sports of their choice.

Attitudinal (Interdisciplinary)

Learners will demonstrate a more positive attitude toward school and the school environment as demonstrated by the following:

—a decrease in the vandalism rate

—a decrease in the truancy rate

—an increase in school attendance

—fewer disciplinary referrals

—an increase in learners attending school functions and participating in school related activities

—positive gains on a pre/post attitudinal survey

Attitudinal (Science)

Sixth grade learners will demonstrate a more positive attitude toward science by the following:

—increased interest in reading science articles

—increased participation in science reinforcing activities

—increased requests for science information

—volunteering for participation in science activities

—writing science stories and/or articles as noted on a teacher prepared checklist

Instructional Level Objectives

Once the program level objectives are completed, the next step in the process involves the development of instructional level objectives. This can be a very time consuming process, and as mentioned previously, districts should be encouraged to collect and use examples from other schools. It is much easier to adapt than to invent.

A problem schools will confront and should be aware of in advance is that most of the curriculum materials collected will be one of two types:

—objectives which are not at the instructional level and do not necessarily address critical skills

—objectives which are written at random and do not fall into any logical learning sequence

This is the very reason why the process described in this manual is valuable. It assists school districts in developing objectives and curriculum in a systematic order, and in placing those objectives in a logical learning sequence. The sequenced objectives can then be used not only by a specific classroom teacher but by any of the teachers in the entire program.

The same writing team which developed program level objectives now begins the task of developing and sequencing instructional level objectives by:

—reviewing once again the program level objectives and revising as required. Don't get bogged down if the program level objectives are less than perfect because they can be revised at a later date. The process of identifying and writing instructional level objectives actually serves as a check and balance for the validity of the program level objectives.

—using the following worksheets, printing each program level objective in the box at the top. Print enough copies, one for each participant. The sample worksheet is used in an elementary district or a K-12 district. The second sample is used for a high school district.

ELEMENTARY OR K-12 DISTRICT WORKSHEET

Subject or Curriculum Area _____

School _____ School District _____

PROGRAM LEVEL PERFORMANCE OBJECTIVE

By the end of the program, learr ers will demonstrate their ability to write mechanically correct paragraphs by completing an essay of at least 300 words on a topic of their choice with no more than five errors in spelling, punctuation, capitalization, and sentence and paragraph structure.

Required Skills/Knowledge	K	1	2	3	4	5	6	7	8	9	10	11	12

HIGH SCHOOL WORKSHEET

Subject or Curriculum Area English

School _____ District _____

PROGRAM LEVEL PERFORMANCE OBJECTIVE

By the end of the program, learners will demonstrate their ability to write mechanically correct paragraphs by completing an essay of at least 300 words on a topic of their choice with no more than five errors in spelling, punctuation, capitalization, and sentence and paragraph structure.

ENTRY LEVEL REQUIREMENTS (MINIMUM) OPTIONAL

Course Title/Number or Code

Required Skill/Knowledge													

—Using the worksheets provided, each with a program level objective printed in the appropriate box, the team will attempt to complete the required skills column. This can be accomplished in the following manner: The team leader goes to a chalk or easel board and asks the question, "What are all those things learners will need to know, or we will need to teach them, in order for them to successfully complete the program level objective?" This list begins at the lowest teaching level possible as the following examples indicate. In the beginning, the session is one of brainstorming and *all* responses are written on the board, and in no particular order. As the process continues, the list is further developed in a rough order or sequence and duplications are clarified. Each participant should copy the final list on individual worksheets.

High school writing teams need to fill in the entry level requirements box for each program level objective. They may be similar or even the same for all program level objectives. This must be done because it gives the high school writing team a base for curriculum development.

It is recognized that learning rates will differ among learners, and some learners may not possess the necessary entry level skills or knowledge to complete an objective within the stated time constraint. The purpose of establishing entry level skills is to ascertain individual learning rates and guarantee that the learner's ability will always be matched against educational material which will allow for learner success and progress.

ELEMENTARY OR K-12 DISTRICT WORKSHEET

Subject or Curriculum Area _____

School _____ School District _____

PROGRAM LEVEL PERFORMANCE OBJECTIVE

By the end of the program, learners will demonstrate their ability to write mechanically correct paragraphs by completing an essay of at least 300 words on a topic of their choice with no more than five errors in spelling, punctuation, capitalization, and sentence and paragraph structure.

Required Skills/Knowledge	K	1	2	3	4	5	6	7	8	9	10	11	12
Recognizing letters													
Letter formation (manuscript)													
Letter formation (cursive)													
Connecting a series of letters													
Spelling													
Capitalization													
Periods													
Commas													
Quotation marks													
Exclamation marks													
Apostrophes													
Hyphens													
Paragraph indentation													
Paragraph structure													
Topic sentences													

HIGH SCHOOL WORKSHEET

Subject or Curriculum Area English

School _____ District _____

PROGRAM LEVEL PERFORMANCE OBJECTIVE

By the end of the program, learners will demonstrate their ability to write mechanically correct paragraphs by completing an essay of at least 300 words on a topic of their choice with no more than five errors in spelling, punctuation, capitalization, and sentence and paragraph structure.

ENTRY LEVEL REQUIREMENTS (MINIMUM) OPTIONAL

6th grade reading level (CTBS)
Score at 6th grade level (CTBS)—Spelling, Mechanics, Expression

Course Title/Number or Code

Required Skill/Knowledge	English 9	English Literature	Five Novels	Drama/ Speech	Short Stories	Creative Writing	Basic English	Media	Humanities				
Essay writing													
Pronouns													
Paragraph structure													
Sentence structure													
Singular and plural of noun forms													
Sequencing													
Quotation marks													
Commas													

—The next step is to determine where each of the identified skills is taught. The team must decide where each skill is first taught and evaluated. This is not when the skill is introduced but where some degree of mastery is required. The appropriate grade level box is checked after the skill. Then the team estimates by what grade level the skill is usually mastered. That box and all the boxes in between are marked. This is done for each skill. For the high school team it may be more appropriate to use individual courses rather than grade levels.

ELEMENTARY OR K-12 DISTRICT WORKSHEET

Subject or Curriculum Area _____

School _____ School District _____

PROGRAM LEVEL PERFORMANCE OBJECTIVE

By the end of the program, learners will demonstrate their ability to write mechanically correct paragraphs by completing an essay of at least 300 words on a topic of their choice with no more than five errors in spelling, punctuation, capitalization, and sentence and paragraph structure.

Required Skills/Knowledge	K	1	2	3	4	5	6	7	8	9	10	11	12
Recognizing letters	✓	✓											
Letter formation (manuscript)	✓	✓	✓	✓									
Letter formation (cursive)				✓	✓	✓	✓						
Connecting a series of letters				✓	✓								
Spelling			✓	✓	✓	✓	✓	✓	✓				
Capitalization			✓	✓	✓	✓	✓						
Periods		✓	✓	✓	✓	✓	✓						
Commas			✓	✓	✓	✓	✓	✓	✓				
Quotation marks					✓	✓	✓	✓	✓				
Exclamation marks					✓	✓	✓						
Apostrophes			✓	✓	✓	✓	✓	✓					
Hyphens		✓	✓	✓	✓	✓	✓						
Paragraph indentation				✓	✓								
Paragraph structure					✓	✓	✓	✓	✓				
Topic sentences					✓	✓	✓	✓	✓				

HIGH SCHOOL WORKSHEET

Subject or Curriculum Area English

School _____ District _____

PROGRAM LEVEL PERFORMANCE OBJECTIVE

By the end of the program, learners will demonstrate their ability to write mechanically correct paragraphs by completing an essay of at least 300 words on a topic of their choice with no more than five errors in spelling, punctuation, capitalization, and sentence and paragraph structure.

ENTRY LEVEL REQUIREMENTS (MINIMUM) OPTIONAL

Course Title/Number or Code

Required Skill/Knowledge	English 9	English Literature	Five Novels	Drama/ Speech	Short Stories	Creative Writing	Basic English	Media	Humanities				
Essay writing	✓	✓	✓			✓	✓						
Pronouns	✓					✓	✓						
Paragraph structure	✓					✓	✓						
Sentence structure	✓					✓	✓						
Singular and plural of noun forms													
Sequencing	✓	✓				✓	✓						
Quotation marks	✓					✓	✓						
Commas	✓					✓	✓						

—Write a statement for each square marked on worksheet. Try to be as specific as possible, particularly about *what* the learner is to achieve. This is *most* difficult and illustrates why it is so necessary to have subject matter people on the committee and why grade level representation is necessary. The statements should not, at this point, be written as performance objectives but only expressed as clearly and definitively as possible.

Vague	Clear
Use commas correctly in a test	Demonstrate ability to correctly use commas in: dates series of objects letter introduction and closure
The learner will be able to add whole numbers	The learner will be able to add 3-column addition with 3-digit addends including regrouping

The whole purpose is to communicate specifically what it is the learner is able to accomplish. It is important to establish communication and ensure articulation between teachers at both the same grade levels and grade levels above and below. If the statements are precise as to what the learner is to achieve it will ease the process of sequencing.

Sample Worksheet

DESCRIBE LEVELS OF PROFICIENCY

GRADE LEVEL 4

REQUIRED SKILLS

COMMAS

LEVEL OF PROFICIENCY (TO WHAT DEGREE WILL THE SKILL/CONCEPT BE MASTERED BY THE END OF YOUR GRADE OR LEVEL)

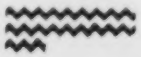
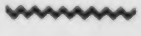
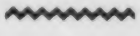
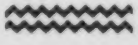
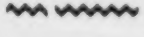
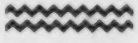
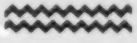
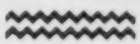
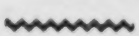
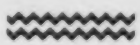
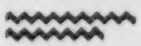
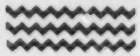
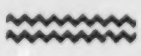
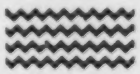
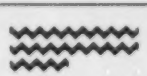
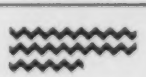
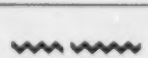
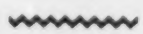
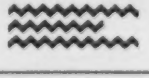
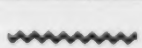
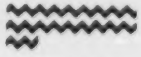
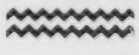
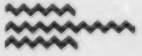
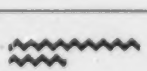
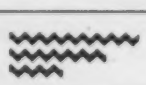
DEMONSTRATE ABILITY TO CORRECTLY USE
IN DATES, SERIES OF OBJECTS, AND LETTER
INTRODUCTION AND CLOSURE.

—As soon as the statements are completed they need to be placed in a horizontal sequence, by grade levels, for the team to critique. One way to do this is to write the statements on sticker labels and place them on a large butcher paper grid as illustrated in the following example.

The first time this is done it will be a rather startling experience. There will be voids, overlaps, and many statements will need to be further clarified. It will also point out the need for sequencing instruction. Reconcile the grid. The skills must be sequenced in an ascending order, from the simplest to the most complex tasks with each statement clearly describing what the learner will be able to master. Patience will pay off and the team must keep working until everyone is reasonably satisfied. The experience is stimulating and most rewarding.

COMPLETE GRID OR MATRIX

OBJECTIVE

SKILL	K	1	2	3	4	5
						
						
						
Commas					The learner will use commas with quotations and to separate words in a series with 80% accuracy.	
						
						
						
						
						

—The final step in the process, once agreement has been reached on the grid, is to rewrite each statement as a performance objective.

WRITE AN INSTRUCTIONAL LEVEL OBJECTIVE FOR EACH LEVEL OF PROFICIENCY

IN A SERIES OF TEACHER DEVELOPED EXERCISES THE LEARNER WILL USE COMMAS IN THE FOLLOWING AREAS:

DATES

SERIES OF OBJECTS

LETTER INTRODUCTION

LETTER CLOSURE

WITH 90% ACCURACY

Sample Completed Grid

By the end of the program, learners will demonstrate their ability to write mechanically correct paragraphs by completing an essay of at least 300 words on a topic of their choice with no more than five errors in spelling, punctuation, capitalization, and sentence and paragraph structure.

Skill	Grade K	1	2	3	4
Commas		The learner will correctly use commas when writing the date.	The learner will correctly use commas in a series of words and in salutations.	The learner will use commas in between town and state, letter introduction and closure, and in a series of at least three words in exercises with 80% accuracy.	The learner will use commas with quotations and to separate words in a series with 80% accuracy.
Sequencing		The learner will demonstrate understanding of sequencing by orally retelling a story or by placing pictures in the proper order with 80% accuracy	The learner will arrange teacher selected pictures and simple sentences in sequential order with 80% accuracy.	The learner will read a teacher prepared paragraph numbering three sentences in sequential order with 100% accuracy.	The learner will be able to write a series of simple sentences in a logical order.
Agreement of Subject and Verb			The learner will be able to correctly use the verb "to be" in teacher prepared exercises with 80% accuracy.	The learner will use the correct form of regular verbs and forms am, is, are, of the verb "to be" in agreement with a singular or plural subject on a teacher prepared test with 80% accuracy.	Given a series of exercises, the learner will demonstrate the ability to use am, is, and are in agreement with singular and plural subjects with 80% accuracy.

Skill	Grade 5	6	7	8	9	10
Commas	In a series of three direct quotations including broken quotations, the learner will correctly place 80% of the commas.	The learner will use commas in compound sentences, after interjections, and separating clauses with 80% accuracy.	The learner will use commas with appositives as introductory elements in teacher prepared exercises with 80% accuracy.	The learner will use commas with interrupters and in compound sentences.	The learner will recognize and demonstrate effectiveness of using a comma to set off a noun of direct address, appositives, and in a series.	In everyday class writing, the learner will use commas correctly in phrases (prepositional, appositive, and verbal) and clauses (adjective and adverb) with 80% accuracy.
Sequencing	The learner will be able to correctly put in sequence a series of related sentences, after reading a short story, with 80% accuracy.	The learner will arrange in correct order several sentences from a given paragraph.	After reading an assignment, the learner will be able to list selected events in correct order.	The learner will write an original story of three paragraphs in proper sequence.	The learner will be able to write in sequence directions to some location and how to do something with 80% accuracy.	
Agreement of Subject and Verb	The learner will demonstrate the ability to use the correct form of is, am, are, was, and were, and regular and irregular verbs to agree with the subject on a teacher prepared test with 80% accuracy.	The learner will demonstrate ability to use 1) correct form of regular verbs to agree in number with the subject 2) was and were in agreement with subjects 3) irregular verbs as specified, with 80% accuracy.				

Comments on the Instructional Sequence

In emphasizing the meaning and correct usage of the two levels of performance objectives, this manual is concerned with the design of procedures which permit effective evaluation of learner performance by those who are accountable for learner progress in the classroom.

When a learner completes a program level objective, by definition the learner has participated in an instructional program. An instructional program begins in kindergarten and terminates with the exit level of the school or school district. It is unfair to a teaching staff to expect a learner entering the program at mid-point—at grade 5—to reach the level of proficiency stated in a program level objective of that school, unless the learner entered the program with the critical skills and knowledge necessary to reach the stated objectives. More importantly, it is unfair to the learner, who does not possess these skills and knowledge, to be placed in learning situations where failure is experienced.

The value of learner assessment should be stressed at this point. Both incoming and continuing learners should be pretested in order to ascertain the entry point on the instructional sequence at which each may enter, experience success, and proceed at an individual learning rate to achieve the program level objective.

An instructional sequence, it must be stated, transcends grade levels, that is, it maintains an orderly or logical sequence regardless of the instructional configuration.

On the other hand, the sequencing of learning activities in a manner that seems most logical to its designer does not necessarily ensure that the learner possesses this same logic. This means the style of learning most appropriate to the learner and the style of teaching most appropriate for the particular teacher will dictate the sequence within each curriculum area. For example, one teacher may prefer to teach vowels before consonants while another teacher reverses the sequence and presents consonants before vowels. Regardless of the sequence, it is recognized that competency in both areas must be acquired by the learner to achieve proficiency in reading.

PROCEDURE FOR IMPLEMENTATION

In Section II a technique or methodology for curriculum development has been presented. The result was a sequenced curriculum based on critical skills and written in performance format. A developed curriculum is, by itself necessary but insufficient for program implementation, learning, and successful teaching. The curriculum must be *implemented* and *managed* in such a manner as to create a meaningful learning environment. The test for acceptable teaching and adequate administration of a school's learning program is whether or not the learners become educated, i.e., learn what is in the curriculum. A sequenced, articulated, and planned implementation and management structure is required. This structure should maximize learning and minimize the uncertainty in teaching and administering learning—objectives, and/or critical skills taught. The structure for implementation and management must be simple, easily replicated, and contain accountability for outcomes.

There are six requirements for the implementation and management of a total system:

—It must first be determined what it is the learner is to achieve—objectives.

—What the learner has already accomplished must be determined—diagnosis—and where to place the learner on a sequence or series of objectives.

—The teacher can then prescribe required work, give appropriate instruction, and use effective media to present appropriate material to the learner.

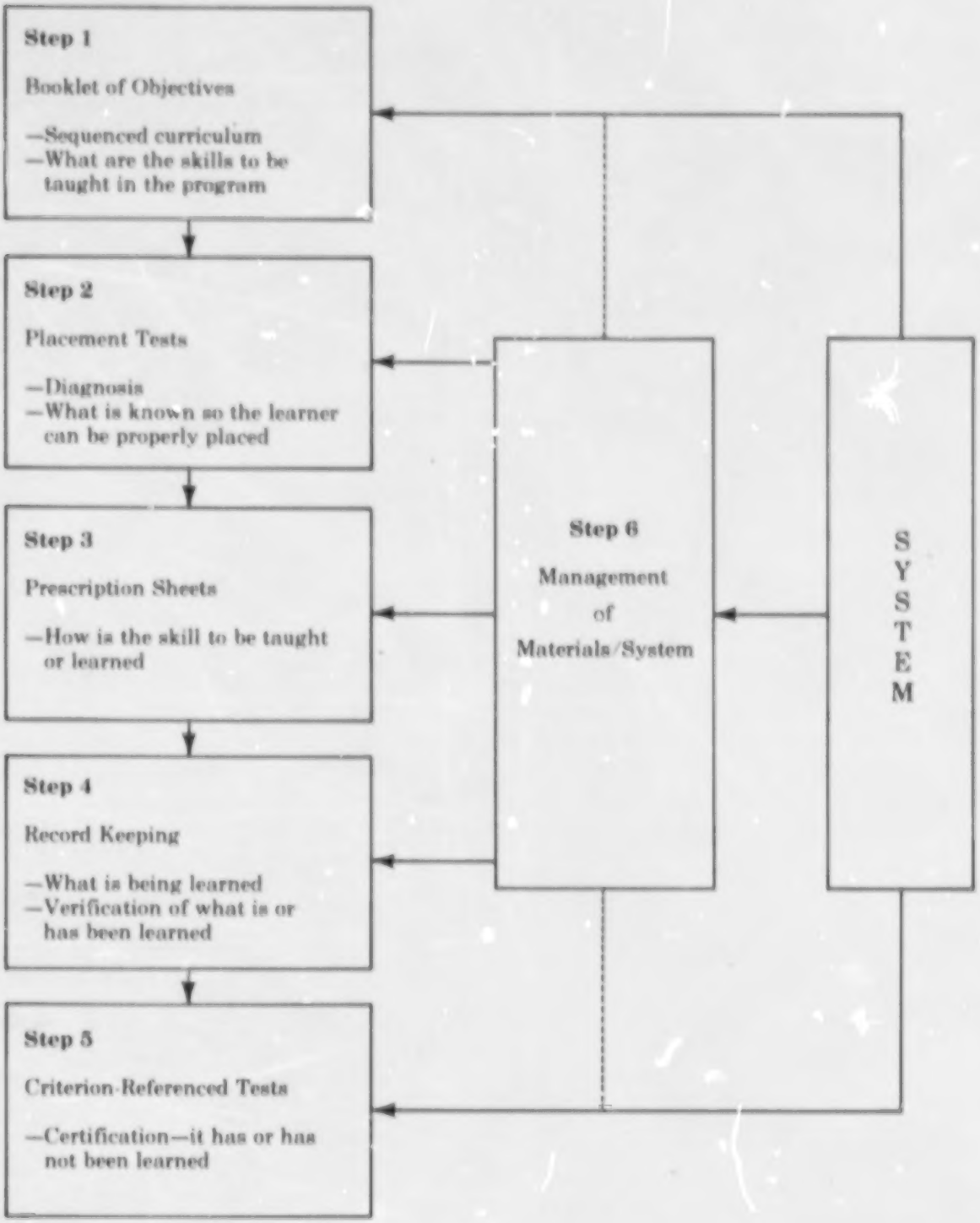
—The learner's progress—learning—in accordance with the prescription(s) must be monitored—recorded to maintain administrative and parental knowledge of where the learner is in the instructional sequence.

—Finally, when the learner seems to have gained the desired knowledge or skill the learner must be assessed against the criterion which certifies that this knowledge/skill/concept has been learned—criterion tests, or posttests.

—Management of materials is required throughout to create a total system.

The materials needed to meet these six requirements may not always be developed in the same order in which they are implemented. The model on the following page indicates the most logical order for development of the materials necessary for implementation and management of a total system.

A diagram of the steps in the development of a total system follows:



A discussion of each of these steps follows:

Step 1. The Booklet of Objectives

The booklet of objectives is composed of the sequence of skills to be learned in a program. The objectives, when completed, lead to the learning of critical skills or minimum levels of achievement—competency—in the subject matter being taught. The following five suggestions will help in the development of a booklet of objectives.

First, write any required narrative.

For example, the developers of the "Baybreeze Language Arts Program" (used as an example throughout this section of the manual) determined that a short introduction was required to explain the intent and purpose of their program. A copy of the introduction follows:

INTRODUCTION

> The objectives do not constitute an entire language arts program, but only include the critical skills which teachers from the contributing schools felt all learners should be able to achieve and that they could realistically guarantee.
>
> The objectives are related to grade levels only because they were initially developed using that format and the fact that the schools involved operated with grades. The skills list must be viewed as a hierarchy ranging from the simplest to the most complex. The skills are ordered in several suggested sequences and therefore can effectively be used in an ungraded situation as a continuous progress curriculum.
>
> The objectives are but a first step in implementing a sequential program. There must also be placement tests to locate each student on the continuum and each objective needs a criterion-referenced test to measure mastery. In addition a record keeping system needs to be developed to chart the student's progress through the sequence. Teachers will then want to relate method and media to the objectives by coding appropriate materials to each skill being taught and establishing procedures to ensure teacher access to all of the items.
>
> The following sequence then, is just a beginning, but does offer teachers valuable guidelines which may be used in a school or system to develop a continuous progress curriculum in language arts.

Second, develop a coding system.

To be clearly understandable, the objectives must be properly sequenced and coded. They form a hierarchy of skills leading to an end result or the desired final outcome. The sequence is determined by the logical learning order or difficulty within the objectives and the degree to which each objective builds on previously learned objectives.

The purpose of coding is to show how materials and tests relate to the skills and objectives. Coding aids in keeping track of materials and media and produces a manageable program of learning.

Some system of coding must be developed to keep the objectives, and later, tests and materials in a workable order. For example, the code number assigned to a test or tests for a specific objective must match the code number of the objective. Many times there will be several evaluation activities available for a single objective. This same code will also be used at a later time for identifying materials and keeping record of learners with respect to specific objectives.

Two examples of coding systems—a three number system for reading and a four number system for mathematics—which can be used effectively for relating instructional level objectives to program level objectives, and/or for sequencing learning strands to grade levels are provided on the following page.

THREE NUMBER CODING SYSTEM

The SARI reading management system* features a functional numbering system which identifies a) reading levels, b) skill areas, and c) performance objectives. The following is a breakdown of the numbering system:

7.2.1 *The first place number* indicates reading level, not necessarily grade level.

0.0 Level	Kindergarten	7.0 Level	Grade 3
1.0 Level		8.0 Level	Grade 4
2.0 Level		9.0 Level	Grade 5
3.0 Level	Grade 1	10.0 Level	Grade 6
4.0 Level		11.0 Level	Grade 7
5.0 Level		12.0 Level	Grade 8
6.0 Level	Grade 2		

7.2.1 *The second place number* indicates a skill area.

.1 Vocabulary	.3 Comprehension
.2 Word Analysis	.4 Oral Reading

7.2.1 *The third place number* indicates a performance objective and identifies a specific pretest and posttest related to that level and skill area.

Summarizing, an explanation of the numbering system with respect to Objective 7.2.1 is:

7 = *The first place number* indicates reading level seven, comparable for material at grade three.

2 = *The second place number* indicates a word analysis skill.

1 = *The third place number* indicates a performance objective.

FOUR NUMBER CODING SYSTEM

A mathematics program which features a functional numbering system identifying a) grade level, b) skill category or strand, c) specific skill, and d) number of objective is described below.

1.1.1.3 The first number indicates the grade level (Grade 1.) Anytime the first number is a zero (0), it indicates the kindergarten level.

1.1.1.3 The second number indicates the category or strand—operations/properties/numeration.

1.1.1.3 The third number indicates the required skill—adding whole numbers.

1.1.1.3 The fourth number indicates the actual objective number within the level and strand. In this illustration three objectives exist for Grade 1.

*SARI is a sequential, step by step reading management system based on 95 performance objectives, 85 of which have pre and posttests for grades K through 8. It features a comprehensive classroom management system and a Parent Information Booklet. For more information please contact:
Phi Delta Kappa, Center for Dissemination of Innovative Programs,
Eighth and Union St.,
Box 789,
Bloomington, IN 47401

Third, list program level objectives.

The following example lists several program level objectives for the "Baybreeze Language Arts Program" (used as an example throughout this section of the manual).

BAYBREEZE SCHOOL DISTRICT

LANGUAGE ARTS

PROGRAM LEVEL OBJECTIVES

Writing:

1. Upon completion of the Language Arts curriculum, the learner will demonstrate proficiency in the mechanics of English, by writing a composition of not less than 250 words, from a list of suggested topics or a topic of the learner's choice. There should be no more than 5 errors in sentence and paragraph structure and no more than 10 errors in spelling, punctuation, and capitalization. A standard dictionary may be used.

2. The learner will be able to write both personal and business letters by completing a minimum of three letters in each category, using the standard accepted format, without error in format.

3. Given several standard forms, which will include, but not be limited to order forms, job applications, testing forms, insurance applications, social security applications, bank forms, and tax forms, the learner will complete each without error in format.

4. After in-class study of various forms of creative writing, i.e., prose and poetry, the learner will complete at least two written assignments using various forms of creative writing. The learner will, to the acceptance of the teacher, express ideas freely and creatively in prose and poetry. The learner will be judged based on discrimination of word choice and ability to develop mood, background, and character through choice of vivid expressions.

5. From selected topics, the learner will demonstrate the ability to properly sequence material by writing a) a sequential description of how something works, b) a set of directions for completing a task, or c) an original story of at least three paragraphs in proper order, according to criteria established by the teacher and the class.

6. The learner will be able to write an expository or narrative essay from topics of the learner's choice according to department developed criteria.

Fourth, code instructional level objectives to each program level objective.

The example which follows lists the coded, instructional-level, required skills in writing that correspond to the first program level objective listed above for the Baybridge School District.

REQUIRED SKILLS: WRITING 1

1.1 Recognizing Letters
1.2 Letter Formation (Manuscript)
1.3 Connecting a Series of Letters to Form Words
1.4 Capitalization
1.5 Main Idea
1.6 Creative Writing
1.7 Periods
1.8 Commas
1.9 Quotation Marks
1.10 Apostrophe/Contractions
1.11 Question Mark
1.12 Sequencing
1.13 Simple Sentence
1.14 Personal Letter Forms
1.15 Exclamation Marks
1.16 Singular and Plurals of Noun Forms
1.17 Verbs (Usage, Tenses)
1.18 Letter Formation (Cursive)
1.19 Paragraph Indentation
1.20 Sentence Structure
1.21 Agreement of Subject and Verb
1.22 Nouns
1.23 Pronouns
1.24 Paragraph Structure (With Supporting Detail)
1.25 Business Letter Forms
1.26 Order Forms/Applications
1.27 Topic Sentences
1.28 Modifiers/Describers
1.29 Conjunctions (Joiners-Connectors)
1.30 Compound Sentence
1.31 Hyphen/Dashes
1.32 Colon
1.33 Semi-Colon
1.34 Essay Writing

Fifth, develop a usable format for objectives.

In Sections I and II of this manual, the development of a sequenced series of objectives was outlined. These objectives must then be placed in a usable format. The writing team determines most usable format. Several formats can be used. Two which work quite well are as follows:

Format Example I

1. OPERATIONS/PROPERTIES/NUMERATION
PROGRAM LEVEL OBJECTIVE

Given problems involving addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals, the learner will demonstrate proficiency by scoring 80% or higher on a teacher prepared test.

.1.1 ADDING WHOLE NUMBERS

1.1.1.1* The learner will demonstrate proficiency by adding the basic facts to 5 and scoring 80% on a teacher prepared test.

1.1.1.2 The learner will demonstrate proficiency in adding basic facts to sums of 10 by scoring 80% on a teacher prepared test.

*For an explanation of a four number coding system refer to page 54.

1.1.1.3 The learner will demonstrate proficiency with addition problems of 2 digits with no regrouping by scoring 80% on a teacher prepared test.

2.1.1.1 The learner will demonstrate proficiency by adding basic facts to sums of 18 by scoring 80% on a teacher prepared test.

2.1.1.2 The learner will demonstrate proficiency with addition problems of 3-digit numerals with no regrouping on a teacher prepared test with 80% accuracy.

2.1.1.3 The learner will demonstrate proficiency with addition problems of 3 or more single-digit addends with no regrouping by scoring 80% on a teacher prepared test.

3.1.1.1 Given addition problems with 2-digit numbers with regrouping, the learner will score 80% on a teacher prepared test.

4.1.1.1 Given addition problems with 3-digit numbers with regrouping, the learner will score 80% on a teacher prepared test.

4.1.1.2 Given addition problems of three or more 3-digit addends with regrouping, the learner will score 80% on a teacher prepared test.

5.1.1.1 Given problems involving two 4-place addends with regrouping, the learner will find the sums with 80% accuracy.

5.1.1.2 Given addition problems of three or more 4-digit addends with regrouping, the learner will find the sums with 80% accuracy.

Format Example II

Critical Skill Commas Code No. .1.8

GRADE K

GRADE 1

1.1.8

The learner will correctly use commas when writing the date.

GRADE 2

2.1.8

The learner will correctly use commas in a series of words and in salutations.

GRADE 3

3.1.8

The learner will use commas in between town and state, letter introduction and closure, and in a series of at least three words in exercises with 80% accuracy.

GRADE 4

4.1.8

The learner will use commas with quotations and to separate words in a series with 80% accuracy.

GRADE 5

5.1.8

In a series of three direct quotations including broken quotations the learner will correctly place 80% of the commas.

GRADE 6

6.1.8

The learner will use commas in compound sentences, after interjections, and separating clauses with 80% accuracy.

GRADE 7

7.1.8

The learner will use commas with appositives and introductory elements in teacher exercises with 80% accuracy.

GRADE 8

8.1.8

The learner will use commas with interrupters and in compound sentences.

GRADE 9

9.1.8

The learner will recognize and demonstrate effectiveness of using a comma to set off a noun of direct address, appositives, and in a series.

GRADE 10

10.1.8

In everyday class writing, the learner will use commas correctly in phrases (prepositional, appositive, and verbal) and clauses (adjective and adverb) with 80% accuracy.

GRADE 11

Step 2. Placement Tests

Placement tests are a more general assessment than are criterion-referenced tests. A placement test is composed of representative items from various objectives in a sequence and assesses where in a series of objectives, at which step, the learner is to begin the instructional program. The test allows a learner to be placed on a sequence of objectives. The test is used to determine which objectives have been mastered and at which objective to begin the instruction process—diagnosis of learner knowledge or skill. The item pool or question bank from which the total placement test items are selected is much larger in scope than the item pool for any single criterion-referenced test. Few items relate to the same instructional task or learning step. Generally, placement tests are developed for multiple levels, grades K-4, 5-8, and 9-12. The following are two examples of parts of placement tests, respectively for grades 1-5 in mathematics and for grades 5-8 in word analysis.

Example

OPERATIONS/PROPERTIES/NUMERATION

Subtraction—whole numbers. (cont.)

233	643	768	652
- 16	- 14	-273	-127

372	5.1.2.1 1203
-191	- 596

Multiplication—whole numbers.

3.1.3.1	2 x 3 = _____		0 x 0 = _____
	3 x 6 = _____	4.1.3.1	4 x 9 = _____
	1 x 8 = _____		5 x 8 = _____
	3 x 5 = _____		7 x 7 = _____
	4 x 3 = _____		4 x 7 = _____
	2 x 5 = _____		3 x 6 = _____
	3 x 0 = _____		3 x 9 = _____

Example

PLACEMENT TEST LEVELS 8.0 THROUGH 11.0

WORD ANALYSIS TEST 9.2.2

1. Read each word.
2. Identify the root word.
3. Write the root word on the answer blank.

1. indirectly _____
2. imperfection _____
3. disgraceful _____
4. deactivated _____
5. entanglement _____

10.2.1

1. Read each definition.
2. Add a prefix and/or suffix to each word to match the definition.
3. Write the prefix and/or suffix on the correct answer blank(s).

Prefixes		Suffixes	
re dis in im mis		less ful able ly ment	
1.	to be unpleasant	1.	_____agree_____
2.	not probable	2.	_____probable_____
3.	to separate again	3.	_____divide_____
4.	to give incorrect data	4.	_____inform_____
5.	without movement	5.	_____motion_____

The steps for developing placement tests are quite similar to those that may be used for developing criterion-referenced tests.

—Pool selected items from criterion-referenced tests into an item bank in a convenient work location—collect the criterion-referenced tests available.

—Develop from the materials an appropriate test—set of items—to measure the series of objectives desired.

—Select representative items from the set of test questions collected which best measure success or failure for each objective.

—Develop, if necessary, other test items for inclusion in the item bank if areas are missing from collected items.

—Carefully check accepted item pool to ensure all needed objectives in the series are represented.

—Arrange items in sequenced order of objectives and difficulty or match to code system.

—Determine level of minimum competency acceptable—a minimum score on the test which is considered passing for each objective represented on the test.

—Determine test format—multiple choice, fill in, etc.

—Develop directions or explanation for test use.

—Field test and finalize test.

—Print the test—revised if necessary—on a standard form if desired.

Step 3. Prescription Sheets

Prescriptions are developed for each objective on the basis of what can be assumed to be known—diagnosis—and what is needed to be learned next—placement. These facts are determined from placement tests, teacher judgment, criterion-referenced, and/or standardized tests. The simplest prescription sheet would state the objective to be mastered by a group of learners. This would not be adequate as an instructional methodology. In addition to the objective statement the prescription should also include, a) a description of how this knowledge will be learned, i.e. what materials—worksheets, texts, media, games will be used for instruction, b) the learning modalities to be used in teaching the knowledge—visual, aural-oral, kinesthetic and, c) the methods of reinforcement required for learners to learn best—positive reinforcement, behavior modification techniques. Prescriptions should always be coded to appropriate objectives.

A prescription sheet may also present an array of materials which relate to a given objective and allows the teacher choice in prescribing materials which will meet individual learner needs and learning styles—modalities.

Suggested methods for identifying resources for each objective are as follows:

—Develop coded manila folder or boxes for each objective and place in a convenient work location.

—For a period of time, usually months, the group responsible is asked to collect samples of all materials, their own and others, and drop them in the coded folders or boxes according to the objective.

—Place the appropriate code number on the materials collected in the previous steps.

The procedures that may be used to develop a group or individual learner prescription sheets are as follows:

—Determine the desired information to be described on the prescription sheet—the format of the prescription sheet. The minimum that this would require is the objective and the standard for success or a code number would suffice.

—Examine the material collected to determine learning modalities, methods of reinforcement, etc., which are or can be used in teaching with this material. Also, consider consistency in relation to objective.

—Code desired information on learning material, methodology, and/or objective taught for use on prescription sheet.

—Develop instructions or explanation for prescription sheet.

—Field test sheet to determine if it can easily be used by teachers.

—Print or duplicate finalized—revise if necessary—version of sheet.

The development of prescription sheets and the identification of appropriate methods and media is an ongoing activity. Some prescription sheets may be developed prior to implementation, but generally they are further refined and developed during the initial year of operation. In addition, as other materials become available, and as methods and media are tested, the prescription sheets are undergoing continual change and updating.

The following two pages provide examples of a prescription sheet with an array of resources available for a specific objective and an individual prescription sheet with resources listed for several objectives.

MATHEMATICS PRESCRIPTION SHEET

OBJECTIVE
6.1.12

TEXTBOOKS

AW —6— Pg. 232—No. 2, a-p,
233—No. 2, a-m,
334—Set 39, Section A & B, 6 Rows,
334—Set 40, Section A & B, 4 Rows

LAIDLAW—7— Pg. 130—No. 1-5, a-b (Bottom right of pg.),
133—No. 1-4, a-c (Middle left of pg.),
133—No. 5-10, a-b (Bottom left of pg.),
347—No. 1-5, a-b (Top left),
347—No. 1-9, a-b (Bottom left and top right),
347—No. 1-5, a-c (Middle right of pg.),
347—No. 6-9, a-c (Bottom right)

HM —5— Pg. 335—No. 13-44,
336—No. 1-39,
338—No. 21-25,
339—No. 15-19,

HM —6— Pg. 306—No. 13-22,
307—No. 1-35,
308—No. 12-17,
309—No. 17-43,
310—No. 4-26,
316—No. 43-54,
327—No. 29-33,
328—No. 12-17

SB —6— Pg. 176—No. 4,
299, 302—Rows No. 7-8

WORKSHEETS

Parkview—2.22 a, b, c, d, e
Ramp No. 3
Madera VII—7, 8

AUDIO VISUAL/KITS

A.F.K.—Cards 207

Arithmetic Fact Kit plus 2—Card Speed—60

A.F.K. plus 3—Speed—60

SRA plus 6

Singer AA Block 18 No. 328, 325
BB Block 18 No. 327
BB Block 10 No. 248, 253, 244
CC Block 6 No. 138, 139, 140, 144

SRA Crossnumber Puzzles
Whole Numbers, Division 1-12
SRA Crossnumber Puzzles
8a, 13a, 15a, 17a, 18a

U—SAIL

Level B—PAC 7

1—Listen
7—Written
1—Oral response

Level B—PAC 10

1—Listen
1—Oral
5—Manipulative
2—Written
1—Game

U—SAIL ACTIVITIES

Level C—PAC 5

1—Game with pantomime
1—Listening tape
2—Manipulative activities
1—Spin, counts, writes sum
1—Game with box
3—Symbolic activities
1—Spin game
1—Subtraction using dice with numbers
1—Creates story problems

SARI PRESCRIPTION SHEET

NAME Joe Jones

OBJECTIVE NO.

DATE	VOC.	W. A.	COMP.	MEDIA AND INSTRUCTIONAL NOTES
Oct. 18, '77	5.1.2			Pretest
Oct. 23, '77	5.1.2			Game - "The Balloon Man"
Oct. 25, '77	5.1.2			Workshet, pg. 6 - Conquests in Rdg.
Oct. 27, '77	5.1.2			Posttest
Nov. 11, '77		6.2.4		Pretest
Nov. 11, '77		7.2.1		Pretest
Nov. 19, '77		7.2.1		Filmstrip and Cassette
Nov. 20, '77		7.2.1		Worksheet, pg. 50 - Do and Learn Book
Nov. 28, '77		7.2.1		Posttest
Dec. 5, '77			3.3.1	Pretest
Dec. 7, '77			3.3.1	Teacher lesson
Dec. 9, '77			3.3.1	Seatwork, pg. 425 - STAR
Dec. 15, '77			3.3.1	Posttest
Dec. 16, '77			3.3.2	Pretest
Dec. 18, '77			3.3.2	Cassette, #2737 - IDEAL
Dec. 21, '77			3.3.2	Game - "Detail Detective"
Jan. 15, '78			3.3.2	Worksheet - teacher prepared
Jan. 26, '78			3.3.2	Posttest
Feb. 19, '78		7.2.2		Pretest
Feb. 26, '78		7.2.2		Game - "Breakdown"
Mar. 6, '78		7.2.2		Learning Center Activities
Apr. 8, '78		7.2.2		Worksheet, pg. 60 - Conquests in...
Apr. 21, '78		7.2.2		Posttest

Step 4. Record Keeping

A method for tracing the learner's progress through a series of objectives ensures that the teacher knows where the learner is at any time in a learning sequence. One cannot easily trust the memory alone when managing and teaching 30 different learners at different points or steps in a sequence. The simplest method of recording a learner's progress would be to use a list of objectives in sequence with a mark denoting that a skill has been mastered and perhaps the date when it was mastered. Once the placement test is administered, learners are placed at their appropriate levels on the sequenced record card. A recording instrument that allows the teacher to see the progress of an entire class at one glance is also very useful. A class record card becomes a profile which can be used to group learners with like needs. Record keeping instruments allow teachers to know where learners are and, therefore, where the teacher is in instructional planning. The procedures that may be followed to develop a method for recording student progress are as follows:

—List objectives per strand or subject area.

—Determine needed information per objective—pass, fail, or retake, date of testing, date of passing, coding to indicate performance, etc.

—Format needed information to list of objectives.

—Write directions for coding or using the recording instruments.

—Field test instruments.

—Print or duplicate recording instruments for use.

Examples of a Student Record Card and a Class Profile Chart can be found on the following two pages.

STUDENT RECORD CARD

TEST PRE	TEST POST	1.0 OPERATIONS/PROPERTIES
		ADDING WHOLE NUMBERS
_____	_____	1.1.1.1 Basic facts to 5
_____	_____	1.1.1.2 Basic facts to 10
_____	_____	1.1.1.3 2 digit problems
_____	_____	2.1.1.1 Basic facts to 18
_____	_____	2.1.1.2 3 digit problems
_____	_____	2.1.1.3 3 or more digits
_____	_____	3.1.1.1 2 digits w/regrouping
_____	_____	3.1.1.2 3 or more 2 digit addends
_____	_____	4.1.1.1 3 digit numbers
_____	_____	4.1.1.2 3 or more 3 digit addends
_____	_____	5.1.1.1 2 four place addends
_____	_____	5.1.1.2 3 or more 4 digit addends
		SUBTRACT WHOLE NUMBERS
_____	_____	1.1.2.1 Minuends no greater than 5
_____	_____	1.1.2.2 Minuends no greater than 10
_____	_____	1.1.2.3 2 digit problems
_____	_____	2.1.2.1 Minuends no greater than 18
_____	_____	2.1.2.2 3 digit problems
_____	_____	3.1.2 2 digits w/regrouping
_____	_____	4.1.2 3 digits w/regrouping
_____	_____	5.1.2 4 digits w/regrouping
		MULTIPLICATION WHOLE NUMBERS
_____	_____	3.1.3 Through 5 x 5
_____	_____	4.1.3.1 Through 9 x 9
_____	_____	4.1.3.2 2 digit by 1 digit through 9 x 99
_____	_____	5.1.3 3 digit by 2 digit factors
		DIVISION WHOLE NUMBERS
_____	_____	4.1.4 Divisors 5 / dividends 25
_____	_____	5.1.4.1 Divisors 9 / dividends 81
_____	_____	5.1.4.2 3 digit dividends / 1 digit divisor
_____	_____	6.1.4 4 digit dividends / 2 digit divisors
_____	_____	7.1.4 6 digit dividends / 2 digit divisors
_____	_____	8.1.4 6 digit dividends / 3 digit divisors

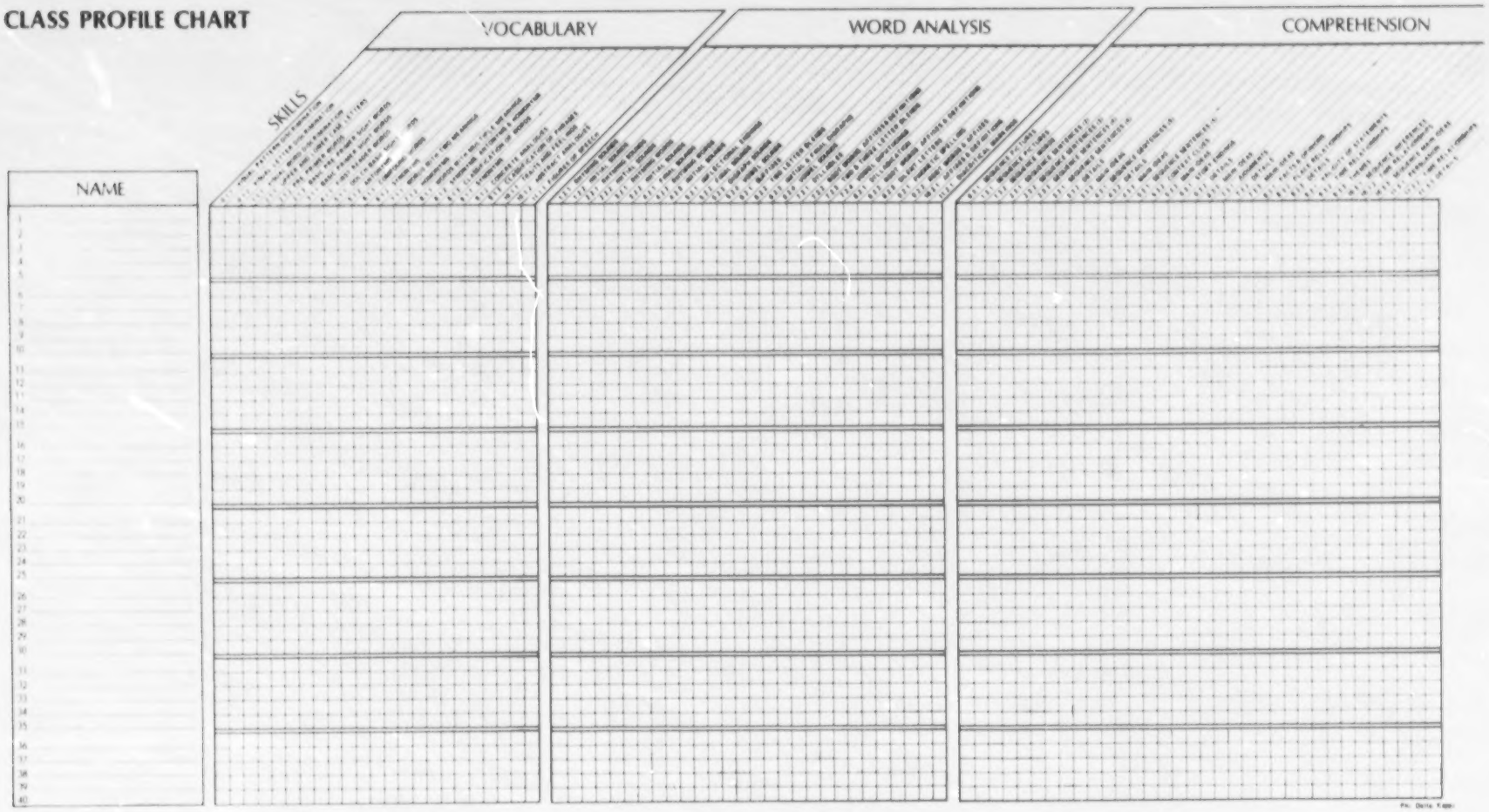
TEST PRE	TEST POST	1.0 OPERATIONS/PROPERTIES
		CONCEPT OF FRACTIONS
_____	_____	1.1.5.1 1/2 of a unit
_____	_____	1.1.5.2 1/4 of a unit
_____	_____	2.1.5. Problems of 1/2 and 1/4
_____	_____	3.1.5. Problems of 1/3, 3/4 and 2/3
_____	_____	4.1.5. Fifths, sixths, eighths
_____	_____	5.1.5.1 Equivalent fractions
_____	_____	5.1.5.2 Reduce to simplest terms
		ADDING FRACTIONS
_____	_____	5.1.6. With like denominators
_____	_____	6.1.6. Mixed numerals / like denominators
_____	_____	7.1.6. Like / unlike denominators
		SUBTRACTION FRACTIONS
_____	_____	5.1.7. With like denominators
_____	_____	6.1.7. Mixed numerals / like denominators
_____	_____	7.1.7. Like / unlike denominators
		MULTIPLICATION FRACTIONS
_____	_____	6.1.8 Proper fractions
_____	_____	7.1.8. Mixed numbers
_____	_____	8.1.8. Mixed numbers / various forms
		DIVISION FRACTIONS
_____	_____	7.1.9. Division fractions
_____	_____	8.1.9. Mixed numbers
		ADDING DECIMALS
_____	_____	5.1.10 2 addends / tenths place
_____	_____	6.1.10 2 addends / hundredths place
_____	_____	7.1.10 3 addends / thousandths place
_____	_____	8.1.10 4 addends / ten thousandths place

TEST PRE	TEST POST	1.0 OPERATIONS/PROPERTIES
		SUBTRACTION DECIMALS
_____	_____	5.1.11 Tenths place
_____	_____	6.1.11 Hundredths place
_____	_____	7.1.11 Thousandths
_____	_____	8.1.11 Ten thousandths
		MULTIPLICATION DECIMALS
_____	_____	6.1.12 Hundredths place
_____	_____	7.1.12 3 digit numerals
_____	_____	8.1.12 4 digit numerals
		DIVISION DECIMALS
_____	_____	6.1.13 Not beyond hundredths place
_____	_____	7.1.13 1 and 2 whole number divisors
_____	_____	8.1.13 Hundreds through hundredths
		CONVERSION DECIMALS/FRACTIONS
_____	_____	6.1.14 Convert to hundredths place
_____	_____	7.1.14 Fractions / Decimals / Percents
_____	_____	8.1.14 Mixed / Decimals / Percents
		PLACE VALUE
_____	_____	0.1.15.1 0 - 10 verbally
_____	_____	0.1.15.2 Arrange cardinal numbers 1-10
_____	_____	0.1.15.3 Associate sets 1-10
_____	_____	0.1.15.4 Ordinal first through fifth
_____	_____	1.1.15 Tens and ones
_____	_____	3.1.15 Ones, tens, hundreds
_____	_____	4.1.15 Value to thousands
_____	_____	5.1.15 Value to ten thousands
_____	_____	6.1.15 Value to millions
_____	_____	7.1.15 Millions to thousandths place
_____	_____	8.1.15 Billions to ten thousandths place

NAME _____

99

CLASS PROFILE CHART



Step 5. Criterion-Referenced Tests

The fifth step in the development of materials for implementation and management is the development of criterion-referenced tests. Criterion-referenced tests are tests that certify the learner has gained competency or learned the knowledge or skill taught. A criterion-referenced test needs to be developed for each instructional objective. Successful completion of the items or questions on a criterion-referenced test indicates the particular skill required to complete an objective has been learned. Criterion-referenced tests generally have redundancy built into them. Redundancy means several items relate to the same desired knowledge or skill. This is to ensure the learner has really learned what is necessary—successfully answered several items covering the same knowledge correctly. Criterion-referenced test items are developed by producing a pool of items that indicate desired learning—objective—and then carefully selecting the best items for specified learning behaviors measured by the test. These items are generally ones that would best indicate success or failure of the learning. Items must be written as carefully and as simply as possible to ensure they measure what is desired to be measured and must relate directly to the requirements of the objective. Successful "passing" of a criterion-referenced test certifies the learner has learned what is required. Criterion-referenced tests can also be used for evaluative purposes to determine from a pre-assessment to a post-assessment the degree of competency gained by the learner in the subject area or strand over a period of time. One method which may be used to develop criterion-referenced tests is delineated below:

—Once objectives are coded, develop a manila folder for each and place in a convenient work location.

—For a period of time—a week or so—the writing team or group responsible is asked to collect or pool various tests—their own and others—and drop them in the coded folders according to the objective.

—Develop from the materials in the folder an appropriate test—set of items—to measure each objective.

  —Select from the set of test questions or items collected those items which best measure success or failure of the objective—by experience, field testing.

  —Develop, if necessary, other test items for inclusion in the item bank if some area or areas of the objective are missing from the collected items.

  —Pool and list all accepted items from the item bank.

  —Arrange items in order of learning difficulty.

  —Determine level of minimum competency acceptable—the minimum score on the test which is considered passing.

—Determine test format—multiple choice, fill in, etc.

—Develop directions—explanation of test use.

—Field test and finalize test.

—Print the test—revised if necessary—on a standard form if desired.

The following are two examples of criterion-referenced tests used in the Systematic Approach to Reading Improvement (SARI)* program.

*For more information contact: Phi Delta Kappa
Center for Dissemination of Innovative Programs
Eighth & Union Sts.
Box 789
Bloomington, IN 47401

The learner will discriminate auditorily the initial sound b, c, d, f, h, m, r, s, and t. Given 9 rows of 3 pictures each, the learner will circle 2 pictures in each row having names that begin with the same sound.

POST TEST 1.2.2

NOTE: *To make this an auditory test each picture's name should be given orally. This could be presented by use of a tape recorder.*

POST TEST 1.2.2

1. Look at the pictures in each row.
2. Circle the 2 pictures in each row that begin with the same sound.

NAME: _____
DATE: _____
MINIMUM: 8
SCORE: _____

SAMPLE

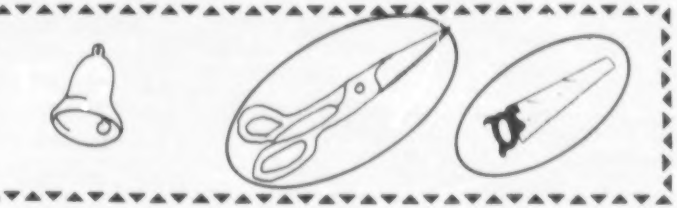
1.

2.

3.

4.

5.



6.

POST TEST 1.2.2

The learner will read stories and select main ideas. Given 6 stories with 3 main ideas for each, the learner will select the main idea for each story.

PRE TEST 7.3.3

NOTE: Teacher may give unknown words. However, if the child requests more than 3 words per page, the instructional level may be too difficult.

1. Read each story.
2. Choose the group of words that best describes the main idea.
3. Mark an X in the box beside your answer.

NAME: _____
DATE: _____
MINIMUM: 5
SCORE: _____

1. Helicopters fly straight up and down. They land and take off quickly without runways. They fly close to the ground.

Helicopters do many special jobs. They rescue people from dangerous places. A helicopter lifts the astronauts from the ocean when they return from space.

On ranches, helicopters help to round up the cattle. In big cities they help traffic policemen.

Helicopters help to fight forest fires. They plant seeds on big tree farms. They spray crops for insects and diseases. A helicopter can place power poles in the ground.

- [ ] Helicopters fly like jet planes.
- [x] Helicopters do many kinds of work.
- [ ] Helicopters do one kind of work.

2. Summer is a busy time for the bright-eyed little chipmunk. When the days are warm, he is busy getting food for winter. By the time of the first frost he must have his house filled with food for winter.

The chipmunk carries the food to his house by putting it into his pouches. He fills one pouch at a time. First, he puts some food into the pouch on the right side, then some into the pouch on the left. When both pouches are filled, the chipmunk runs off to his room in his burrow. The chipmunk works from sunup to sundown.

- [ ] Chipmunks are frisky animals.
- [ ] Chipmunks eat only in the summer.
- [x] In the summer chipmunks store food for the winter.

3. Insects protect themselves in many ways. They are tiny creatures but they can keep big animals from killing them. There are millions of insects.

An insect lays great numbers of eggs. Many eggs and baby insects are killed, but many insects grow up and lay more eggs.

Insects can hide easily because they are small. They hide in the ground, in flowers and in the bark of trees.

Color protects insects. Insects in the ground may be brown. Their enemies cannot see them easily in the ground. Shape protects insects, too. Some are shaped like the leaves they feed upon. Others look like twigs.

- [ ] Color protects insects.
- [x] Insects protect themselves in many ways.
- [ ] There are millions of insects.

4. Dogs work in police departments of some cities. The dogs help policemen guard buildings. They find lost children and catch criminals.

A dog's keen hearing helps him find prowlers. His sense of smell may help him track a thief to his hiding place. Fast legs help a dog to be good at police work, too.

A police dog is trained to track people in all kinds of weather. He is trained to stop people and keep them from getting away.

- [ ] Dogs help policemen guard buildings.
- [ ] Police dogs frighten people.
- [x] Dogs are trained for police work.

5. How do you talk to a friend on the other side of a room full of people? How can you say "yes" or "no" without saying a word? You talk with your hands. You make a sign with your fingers that tells your friend what you want to say.

In early days Indians and white people talked with their hands. It was one way many Indians could talk to other people. Sometimes the Indians of one tribe could not speak to the Indians of another tribe in words. Sometimes it was between the Indians and the white men because they could not understand the words of each other.

The signs were so clear that anyone seeing people talk with their hands knew what the meaning was.

- [ ] The Indians used drums to talk to other people.
- [x] You can talk to others without using words.
- [ ] The meaning of spoken words

6. Birds are one of the five main kinds of animals living on earth. You know that the other kinds are mammals, fish, reptiles, and amphibians. Why are birds in a separate group? Birds are in a separate group because they can fly. Their bones are hollow. They have wings instead of arms or fins. Like the mammals they are warm blooded, but like the fish, reptiles, and amphibians, they lay eggs.

- [x] Birds are different from other animals.
- [ ] Birds can fly and lay eggs.
- [ ] Birds are like all mammals.

PRE TEST 7.3.3

Management of Materials/System

The management of the vast array of teaching materials is probably the most difficult task for a teacher to accomplish. If all learning materials are coded to the objective or objectives to which they relate and are readily accessible, the teacher's task becomes a great deal easier. A master list of all coded materials allows one to see at a glance what is available to be prescribed for each individual learner and to choose from among alternatives those that best meet individual learning modality needs and learning patterns. Coding of materials is a cumbersome and time consuming task—but it need take place only once. Updating of newly acquired or developed materials then becomes a relatively minor adjustment to the master list. Materials need to be accessible to all who use them. Files of materials—file cabinets or cubby holes such as large mail slots—coded and identified by objective can be quite useful. The more materials located in a teacher's classroom, the more use those materials will get. Therefore, multiple copies of materials are very helpful. When the budget does not allow for this or materials are used to a very limited degree, a central depository of materials can be used. When materials are borrowed for classroom use, a method for tracking materials in a central depository is necessary to maintain availability of all materials to all teachers.

If the system is developed properly, management follows naturally. All aspects of the system use specific format and printed management materials—objectives booklet, recording sheets, prescription sheets, etc. All management materials have format directions and explanation for use. The management system consists of:

—keeping a record of learners' progress by way of a recording system

—keeping a record of learners' schedule as progress is made through objectives

—keeping a record of learners' prescriptions

—learner reporting

—parent reporting

The following procedures are required for successful implementation or management of the system:

—Obtain staff commitment to system.

—Have staff involved in either developing the system or choosing a developed system.

—Inservice staff in use of system.

—Troubleshoot or correct problems that arise.

—Monitor system to take the "pulse of the system" periodically.

—Objectively and professionally respond to criticism of the system.

—Implement system gradually.

—Establish a method of filing for ordering and keeping track of objectives, tests, and teaching materials.

—Revise system when required for use.

—Use system as an aid to teaching or educating, not as "ten commandments" set in stone.

APPENDIX

Exercise I

The task in writing performance objectives* is to become proficient and skillful in identifying the three basic components of an objective. The three are:

a) *What* must be *known* or *done*.

b) *How* it will be *done* or *demonstrated*.

c) *How well* it must be done.

The following exercise is presented to enable the reader to practice newly acquired information. Using the three major components of performance objectives listed above as guidelines, correctly label, using the above letters as answers, the following parts of performance objectives:

1. From a given list of words and using standard dictionary _____
2. the learner will be able to look up 15 words and write the dictionary definition _____
3. without error, in a 30-minute period of time. _____

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4. The learner will be able to operate three standard type phonographs and play records on them _____
5. without error _____
6. at speeds of 33 1/3, 45 and 78 RPM. _____

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7. The learner will be able to utilize the "Dolch Vowel Game" _____
8. in a simulated exercise _____
9. without error, as judged by the instructor. _____

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10. The learner will demonstrate addition, subtraction, multiplication, and division drill skills by _____
11. using the "Toy Money Kit" _____
12. as measured by prepared questions to 90% proficiency. _____

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13. Given a list of 15 words from *Roget's College Thesaurus*, _____
14. the learner will find another shade of meaning for each word _____
15. with 80% accuracy as determined by the teacher. _____

See Answer Key on page following Exercise VI.

*_A Programmed Course for the Writing Performance Objectives_ is available from:

Phi Delta Kappa
Center for Dissemination of Innovative Programs
Eighth & Union Streets
Box 789
Bloomington, Indiana 47401

Exercise II

This exercise requires identification of a missing component of a performance objective and completing the objective by writing a component for it.

Incomplete Objective	Missing Component
1. The learner will complete a series of exercises and score 80% on a test.	_____
Your component:	_____
2. The learner will identify earth climatic zones without error.	_____
Your component:	_____
3. The learner will adjust a carburetor of a four cycle engine.	_____
Your component:	_____

Use the Answer Key on the page following Exercise VI to check answers for missing parts. If possible, it is suggested the reader discuss each written component with someone else working in this manual.

Exercise III

The previous exercises related to skills in identification of a performance objective's three component parts: *what, how, how well.* This exercise will assist readers in becoming proficient in the use of appropriate vocabulary when designing performance statements.

> A performance objective must be written in clear, precise language so that it helps the learner to specifically know what to do. It must not be vague or confusing.

Study these two lists and identify which more clearly tells precisely what a learner is to do. Ask yourself, which of the two lists best tells me exactly what to do?

A	B
to list	to appreciate
to collect	to enjoy
to construct	to believe
to compare	to grasp
to solve	to understand
to contrast	to know

Obviously, list A is the more definitive of the two. Compare the two following objectives and identify the one which most clearly describes specifically what the learner is to do.

1. The learner will read Hemingway's *Big Two Hearted River* and grasp the significance of the story.
2. The learner will read Hemingway's *Big Two Hearted River* and write two or three paragraphs describing the main theme of the short story.

The second objective should be selected. The learner realizes that a written response is required which describes the main theme.

Exercise IV

The learner will demonstrate ability to identify complete performance objectives from incomplete performance objectives by completing Exercise IV without error.

Place a check (✓) before statements which you believe are performance objectives.

_____ 1. Kindergarten learners will pick up colored blocks that correspond to the oral directions from the teacher with 100% accuracy.

_____ 2. In a test of basketball skills, male learners in fifth grade, using hand push shot, will score 2 out of 10 shots from the free throw line attempted at a basket set at regulation height.

_____ 3. Seventh grade girls will demonstrate their appreciation of music by singing "America the Beautiful."

_____ 4. Second grade learners read for understanding "The Three Pigs."

_____ 5. Given a series of advertisements, political brochures and/or taped statements, learners will differenti . between emotional appeal, value judgment, and factual information in an exercise devised by the teacher, with 75% accuracy.

_____ 6. From a teacher prepared list of words and using a standard dictionary, the learner will correctly pronounce all of the words from the list, when called upon by the teacher.

_____ 7. Learners will complete a word recognition test after three weeks of instruction.

_____ 8. By the end of the 8th grade, learners will be able to express themselves creatively with various art media.

_____ 9. By the end of the unit the learners will be able to edit and rewrite an incorrect paragraph and correct the capitalization, punctuation, sentence structure, and paragraph structure with 75% accuracy.

_____10. The learners will demonstrate their knowledge of a "food chain" by completing the teacher developed diagram.

See Answer Key on the page following Exercise VI.

Exercise V

This exercise is for review and practice, it is an optional assignment. Place a check mark (✓) to the left of each performance objective which you judge to be acceptable according to the criteria established for performance objectives. If incomplete, check in the right-hand margin any missing element and record your comments.

Objective	Missing Component (If Any)	Written Comments
_____1. When given three paragraphs in which periods, commas, and capital letters are missing, the learner will be able to capitalize correctly and place properly all periods and commas.	1. What How How well	_____ _____ _____
_____2. After class discussions and films concerning the Monroe Doctrine, the learner will know how the Doctrine has been related to the United States' foreign policy today.	2. What How How well	_____ _____ _____
_____3. When given a list of four major causes of the Great Depression, the learner will be able to explain each one to the satisfaction of the teacher.	3. What How How well	_____ _____ _____
_____4. After studying the material outlined below, the learner will be able to solve the problems at the end of the chapter involving simple fractions.	4. What How How well	_____ _____ _____
_____5. Read the six poems listed below for the purpose of learning to enjoy poetry.	5. What How How well	_____ _____ _____

See Answer Key on the page following Exercise VI.

Exercise VI

Following are examples of complex and simple level performance objectives. Mark a "C" before those which are complex and an "S" before those which are simple.

_____1. Given the name of a famous person, the learner will demonstrate knowledge of biographical source material by listing three specific sources an author would use in writing a biography about that person.

_____2. Given a picture of a clock, the learner will correctly tell the time to the hour, as represented on the clock.

_____3. The learner will demonstrate knowledge of responsibility to peers in a role playing situation in which one learner is the aggressor, and imaginary use is made of objects such as a ball, pencil, hand, or paints. The learner will be able to play the role of the aggressor or the one attacked, and will offer at least two solutions to the problem to the satisfaction of the class.

_____4. At the termination of the unit, the learner will be able to list in writing at least 12 states not involved in the U.S. Civil War.

_____5. Given a problem by the teacher, each learner will give orally to the class at least one solution. There will be a consensus of the class and the teacher that the solution is practical.

_____6. The learner will discuss, evaluate, and formulate a solution for a social issue regarding name calling, ridiculing, color, clothing, speech, or physical disabilities, by participating orally in a group discussion until the problem is solved to the satisfaction of the teacher and the group.

_____7. The learner will arrange in order of objective reporting three articles dealing with the same topic, according to the criteria of accuracy and clarity established by the American Newspaper Association.

_____8. The learner will list in writing, with 100% accuracy, four works of Milton and Keats.

See Answer Key on next page.

Answer Key

Exercise I

1. b	4. a	7. a	10. a	13. b
2. a	5. c	8. b	11. b	14. a
3. c	6. b	9. c	12. c	15. c

Exercise II

1. What is to be done
2. How it will be done
3. How well it will be done

Exercise IV

Checks should have been for 1, 2, 5, 6, and 9.

Exercise V

Objective Missing components:	Comments:
1. Nothing missing	1.
2. What How well	2. Is "know" a specific term?
3. What	3. What does "explain" mean?
4. How well	4.
5. How, How well	5.

Exercise VI

1. S	3. C	5. C	7. C
2. S*	4. S	6. C	8. S

*Elementary teachers may tend to mark this example complex, while high school teachers mark it simple.